NEGOTIATING RESTORATION:
INTEGRATING KNOWLEDGES ON THE ALOUETTE RIVER, BRITISH COLUMBIA

by

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Abstract

Multi-stakeholder based planning processes have been used extensively in British Columbia for land-use planning, and have now begun to be applied to water through the new Water Use Planning (WUP) Program. The WUP Program is designed to create a better balance between the multiple uses of water (power generation, fisheries, flood control, recreation, etc.) at BC Hydro's water control facilities around the province. A pilot process was carried out to develop the Alouette Water Use Plan (AWUP) before the Program was established. The AWUP process combined public involvement tools such as facilitation, education, and group decision making, with decision analysis tools for structuring the problem. While the AWUP process has been widely regarded as successful, it is valuable to examine the lessons learned in the Alouette experience before developing Water Use Plans at other facilities.

The goal of this thesis is to evaluate the Alouette Water Use Planning process from the perspective of its participants. A framework is developed for assessing multistakeholder processes, in terms of their ability to involve participants in both policy making and knowledge generation. This framework is applied to the AWUP process, using interviews with participants as the primary source of data. The results provide insight into the merits of structure and participant control in the development of multistakeholder processes, and into the factors that affect the public's understanding of technical information.

Key strengths of the AWUP process include involvement of a wide range of stakeholders, sharing of key information, implementation of the plan after agreement was reached, and an adaptive approach to ongoing management. Key weaknesses include the failure to recognize pre-existing community organizations, resistance to involving the public in technical studies, inadequate sensitivity to cultural differences, and limited means for remaining accountable to the broader public. Recommendations are made for improving individual water use planning processes, information development processes, and the overall water use planning policy.
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SECTION I. LITERATURE REVIEW
1. INTRODUCTION

As a vehicle for metaphors, water is a shifting mirror. What is says reflects the fashions of the age; what it seems to reveal and betray hides the stuff that lies beneath. (Illich, 1985)

Unlike almost any other substance, water captures the human imagination. Although it is widely abused as a chemical fit only for cleansing our filth or passing through our machinery, it continues to have deep spiritual meaning. The evidence of this spiritual meaning is the emotion which surrounds conflicts around water. These are not merely conflicts about distributing a scarce material resource, but debates in which the stakes are highly charged with moral content. They are not about external appearances or reflections, but are at root about “the stuff that lies beneath” -- the way in which the world is seen differently by different people. Indeed, these different cultural understandings and approaches exert tension within each person.

On top of the different cultural understandings of conflicts over environmental resources like water, there are also various approaches to studying them, various lenses through which they can be viewed. I am looking at these conflicts from the perspective of organizational studies. Organizations such as government bureaucracies, business organizations, First Nations governments and environmental non-government organizations (ENGOs) are often the key players in such debates. These organizations, like all of social reality, are constantly recreated through social interactions. Thus the organizations themselves are not simply stark structures, slots into which people are placed, but structures that are continually re-inventing themselves and their relations with others.

It is possible for different descriptions of an organization to exist side by side, different organizational metaphors. In order to understand environmental conflicts, it is important to understand these different organizational images, which are part of the common stock of knowledge which each individual brings to an environmental conflict. Because organizations are complex entities involving many different people carrying out diverse tasks, it becomes increasingly difficult even for those within an organization to understand it. Thus organizational images provide a way of describing those nightmarish webs of bureaucracy many organizations become, as important ways of making sense of the world.
They are not merely metaphors, but powerful and widely used symbols meant to convince and develop consensus on issues.

Recent negotiations related to the quantity and timing of water flows below a dam on the South Alouette River, in the District of Maple Ridge, British Columbia provide an example of a conflict resolution exercise involving various organizations. The process was organized by BC Hydro, the operator of the dam and the largest electrical utility in the province, but involved the creation of a committee with members of federal, provincial, municipal and First Nations governments, as well as members of a local environmental coalition, naturalist's group and riparian residents along the river. Called the Alouette Stakeholder Committee (ASC), the group was given the task of coming up with a detailed operating plan for BC Hydro's facilities on the Alouette River, which came to be referred to as the Alouette Water Use Plan (AWUP). Thus the field of my study is the slippery world of multistakeholder politics -- group decision-making processes involving both members of the affected public, government agencies and business organizations.

Although many other changes in the area, such as urbanization, dike construction and gravel removal have impacted the health of the Alouette River, the issue of flows in the river has been of concern since the building of the Alouette Dam in the 1920's. The Alouette Dam reverses the flow of a large portion of the South Alouette River, where it is diverted through a tunnel into the nearby Stave Lake to produce power (see Chapter 5 for a map of the area).

But while the Alouette River provides electrical power for BC Hydro, there have been a number of concerns about the impacts of power generation on other users of water and the river corridor. Because water is diverted out of the watershed, many local groups and government agencies with an interest in fisheries have had concerns related to flows for fish, beginning at least as early as the 1950's (see Chapter 5 for a more thorough description of the history). The river also provides recreational opportunities for both local residents and people from throughout the Lower Mainland. In addition, large floods occurred in 1980 and 1995 which caused extensive property damage to the homes of people living near the river. These issues and others make the Alouette a complex case study of the conflicts that can occur around various uses and benefits of water resources planning and management, and of the various approaches to its resolution.
I have taken this case study on for a number of reasons. First, it is close to where I live. Although I have taken an ethnographic approach to studying the case, through carrying out in-depth interviews, I have not adopted the (at least once commonly held) anthropological belief that fieldwork involves travelling to exotic places. Because the case study was nearby, it was not difficult to contact interview participants when questions arose, even after a long period had passed after the initial interview.

Second, and more importantly, the AWUP is seen as a model for water use plans for all other hydroelectric facilities in the province, and possibly for new large water projects of all types (e.g. power, water supply, irrigation, etc.). Although policy guidelines have been drafted for Water Use Plans (BC, 1997), these largely outline a process similar to the one carried out on the Alouette, with the addition of various other environmental appeal processes. Given the fact that the provincial government has proclaimed the AWUP as a "...successful public participation process..." (BCMELP and BCMEI, 1996), and because it is seen by many within government and BC Hydro as a prototype for future Water Use Plans, it merits further study.

1.1. Purpose and Objectives

The purpose of this thesis is to evaluate the process used to develop the Alouette Water Use Plan (AWUP). In order to carry out this evaluation, several sub-objectives are also being pursued.

1. To review approaches to studying organizations, with a particular interest in the interactions between organizations.

2. To review public participation literature, in order to synthesize a set of criteria that I will use as a case study evaluation tool.

3. To analyze the images of the organizations involved in the AWUP.

4. To evaluate the AWUP process from the perspective of those involved, using the public involvement and public science criteria as a comparative tool. This is an iterative task, involving reflection on both the case study as well as the criteria themselves.

5. To make recommendations for how processes such as those carried out on the Alouette can be improved based on my own interpretation of the case study.
1.2. Study Approach

Theory is always full of pretension, even scientific theory. . . Decorative cross-references to other, grander theories are part of the genre. (Douglas, 1992)

The most difficult part about studying environmental conflict is choosing a starting point. It is now acknowledged as a truism in most academic circles that the way in which the research problem is framed affects the results of the research. So how does one go about studying a group such as the Alouette stakeholder committee, involving people from government agencies, ENGOs (environmental non-government organizations), members of the general public, and employees of a public utility?

My initial thoughts on how I should be studying the committee were very much shaped by readings in the sociology of science literature, particularly writers such as Brian Wynne (1992; 1995; 1996), who studied the encounter between scientists and sheep farmers in the hill country of England, dealing with the fallout from the Chernobyl nuclear accident. In this work, I found an interesting analysis about the way in which scientific knowledge and scientists themselves were perceived by lay people, and the ways in which things which seemed external to the science, such as its institutional context and openness to lay knowledge, were often key in understanding how people responded to scientific advice.

This theoretical approach seemed to fit. There were scientists involved in the Alouette, who developed models linking changes in water flows in the river to changes in fish habitat. The models were extremely complex -- some of the scientists involved described the modelling work as perhaps the most complex assessment of the downstream impact of a hydroelectric project ever attempted in this province. At the same time, there were "lay people" involved, who had a deep concern about the environmental health of the river, or the safety of their homes along the river.

However, like most theories developed before going to the field, it proved inadequate. From the first interview I carried out, I began to suspect that there was something missing. Certainly, many interview participants had something to say about the technical studies that were done. A number of people complimented the scientists and engineers for working very hard; others expressed doubt in the methods used to link flows and fisheries, recreation and other values. On the other hand, many interview participants had little to say about them at all. Some people suggested that maybe they were not the right individual to
ask -- perhaps I should talk to someone else more knowledgeable. Another admitted that following the experts was a struggle and joked that maybe he was the dumbest guy in the room. While a number of people talked at length about their involvement in the technical studies and reflected on how the studies were brought into the discussions of the group, many of the people who were interested in the science had been directly involved in sitting on technical sub-committees or in carrying out the studies. There seemed to be much less interest in the technical studies outside of that core group.

The second area which I was confident would prove to be important was lay knowledge. I was unsure what form this knowledge would take, although I was certain I would find some wise man or woman, an old timer who perhaps would remember how things were on the Alouette River in the good old days, when fish were abundant. Given that hydroelectric development had occurred on the river in the 1920's, I thought it unlikely that I would find anyone who had extensive personal knowledge from before that time, but perhaps it had become an urban legend by now, a tale that was part of the suburban folklore of Greater Vancouver.

Although some of the members of the committee had a long history and interest in the health of the river, I did not realize fully that the kind of history and knowledge that I had been searching for was elusive until I had completed the interviews and reflected on what I had heard. What emerged seemed to have less to do with science, and more and more to do with bureaucratic organizations. I think a comment made in an interview in the last portion of my fieldwork struck home -- "we're a bureaucratic country. The politicians think they run things, but they don't" [JH].

On the one hand, this is a fairly common sentiment these days, reflecting frustration with government incompetence and waste. On the other hand, it resonated with my own experience in many of the previous interviews, in which the bureaucracies and organizations involved provided the backdrop to all discussions. The interviews were often less about what constituted reliable knowledge, and more about who was allowed to do what and when, what kind of information was allowed to be publicly exposed, who was in charge, who was responsible, what was the most efficient way of doing things. Thus it became clear to me that much of what I was hearing had less to do with the development of scientific knowledge, and more with how different organizations use that knowledge; less
to do with the lay perception of experts, than the accepted/official and pragmatic/unofficial rules for lay and expert interaction with bureaucracies. The introduction of the organizational or corporate dimension, as well as the central figure in that dimension, the manager, was key to understanding the Alouette Stakeholder committee.

My study approach borrows from discourse analysis, although I use a specific set of criteria developed from a literature review to frame the analysis. Discourse analysis developed as a method for analysing larger portions of text, out of a desire to describe the larger structures which speakers and hearers implicitly recognize, which go beyond sentence structure (Mills, 1997). Within discourse analysis, there are various approaches. At one end of the spectrum are "non-critical" approaches, at times referred to as "phenomenological", "ethnographic" or "grounded". Within organizational studies, an example would be John Van Maanen (1988), who describes the work of ethnography as work based on a researcher's first-hand experience in the field, from which the goals of the research emerge. The principal work of ethnography is "to translate the interests and concerns of one people into the interests and concerns of another" (Putnam et al. 1993), a description that echoes interpretative anthropologists such as Clifford Geertz (1983a).

At the other end of the spectrum are "critical" approaches, which attempt to bridge their analysis with broader political questions. Critical approaches often fall in the tradition of neo-Marxism, and are critical both in their analysis of texts as well as of ethnographers. Critical theory is evaluative rather than descriptive, questioning the status quo, which it sees as the result of meanings that have been implicitly forced on society at large by those who have power. It is emancipatory in that it attempts to "undermine the veneer of a stable reality that organizational members take for granted." (Mumby in Putnam et al. 1993). The failure of ethnography to take an evaluative position, it is implied, means that the researcher may easily adopt the position of a particular powerful group rather than those within the organization who do not have the power to define a clear position. Thus the claim is that "an emancipatory philosophy achieves better representation of the interests of diverse organizational groups than does ethnography." (Mumby in Putnam et al. 1993). However, while this claim may seem obvious to a critical theorist, it may not be so for organizational participants. Ethnographers such as John Van Maanen (in Putnam et al. 1993) draw attention to the overemphasis of academic texts in the work of critical theorists, at the expense of the voice of the person being represented. There is thus a conflict
between critical theory's claim to be "emancipatory" and its privileging of a particular set of meanings based in critical theory.

Perhaps it is possible to talk about power relationships in a meaningful way without falling back on dogmatic theories. Indeed, in *Discourse*, a book describing the various traditions which analyse discourses, Sara Mills (1997) suggests that "it is this type of fusion of larger social questions with smaller scale analytical ones which holds the greatest potential for future work in this field." While many have done work at either end of the spectrum -- carrying out detailed analysis of sentence structure and composition, or focusing on how Marxist power structures are evidenced in conversation -- much less has been done to bring these two levels of analysis together.

Bringing about a fusion of the larger social context with the analysis of discourses which Sara Mills refers to is not easy. The approach I have taken is to develop some criteria out of various literatures which seem applicable to the case at hand, and to take those criteria with me into the field and use them as a sounding board. I also added to the criteria after looking over the transcripts of my interviews. This may seem like "cheating", but that is only the case if one looks at the criteria as universal objectives by which any kind of conflict resolution exercise can be judged. I look at them rather as a kind of disposable framework, useful in describing my case study and providing a way of connecting to larger social and policy questions.

The criteria I have chosen come out of the literature on public participation processes, public interaction with institutions and experts, as well as from the case study itself. There is no doubt that my choice of criteria affects the overall result; however, a number of things can be said in favour of making such a choice. First, being explicit about such choices clarified my own assumptions about what happened or should have happened in the development of the AWUP. Second, as previously mentioned, I tried to be flexible about the criteria and have adapted them to the data I received. I went into the interviews with a preliminary list of questions based on some of the criteria I first identified, but found that I had missed a few critical areas. In those cases, I added criteria to the list which seemed to fit in with what I was hearing the interviews (see Chapter 3 for details).
Certainly, the case has already been written up by the process facilitators in what was described by one participant as an “academic” form.

GC [Gregory & McDaniel’s (1996) final report on the ASC] is academic in its approach, as well it should be, given the academics that wrote it up

(laughter)

It doesn't necessarily capture the community and I'm sure that's why you're out here.

I am not sure if this thesis is any clearer or less academic than the final report by the process facilitators. I do hope that by adapting the framework to the case study as it evolved, I have retained the voice of interview participants as much as possible.

1.3. Methodology

My primary source of data is a series of interviews with participants in the Alouette Water Use Planning process. I carried out interviews with 19 different people, mainly over the period of November 1997 to June 1998 (See Appendix B for a complete list of interviews). An interview carried out previous to the thesis research as part of other course work at UBC was used as an additional sources of information. Additional information was obtained from a follow-up interview with one participant when questions arose as I wrote up the analysis of the interviews.¹

The interviews were carried out in the homes and offices of interview participants, as well as in local restaurants. Although I had a list of questions which I brought into the interviews (see Appendix C), the interviews were open-ended. In other words, I used the questions only as a guide and followed up on issues of interest to interview participants.

I attempted to interview representatives from all of the organizations involved in the ASC. In some cases (such as BC Hydro and BCMELP), there was more than one representative, and in that case only one or two people were selected. I also conducted interviews with two individuals who made presentations on technical information to the committee, as well as three people who were involved in the planning and facilitation of the ASC process.

¹ Parks Canada and BC Hydro carried out a series of short interviews with some of the participants as part of an instructional video. This material was used as background information in preparation for interviews. Although I obtained consent from participants to use material from the videos, after carrying out interviews myself I found that it was unnecessary to draw on the video interviews.
Because of the small size of the ASC, it would have been difficult for me to maintain the anonymity of the participants. Instead, participants are identified in all of the quotations by their first and last initials. I felt it was critical to ensure that I had the participants' consent to attach their names to their words. This was accomplished by sending the selected interview quotes to each participant, asking that they confirm their approval. This resulted in a few changes to quotes, mainly of an editorial nature. In a couple of cases, quotes were omitted or changed substantially at the request of individuals.

In addition to the interviews, I have drawn on a number of written documents as a secondary source of data. These include reports prepared by BC Hydro staff and consultants on the policy and technical aspects of the AWUP process, and written material from the files of several of the interview participants (see Box 1.1). BC Hydro staff did not feel comfortable in releasing any of the records of the ASC meetings, however, I did obtain copies of meeting minutes for ten of the fifteen meetings from interview participants. The major use of written documents was in understanding the history leading up the AWUP process, and documenting details about the AWUP process such as time frames, numbers of meetings, numbers of participants, etc.

### Box 1.1. Secondary Data Sources

- Letters and Correspondence (13).
- Technical reports, websites and other resources (19).
- General reports, news releases, websites and other resources (15).
- Alouette Stakeholder Committee meeting minutes (available for 10 of 15 meetings).
- Other meeting minutes (1)

(Details in *Secondary Data Sources* section)

1.4. **Scope and Assumptions**

While the virtual theses described in thesis proposals may appear to be perfectly holistic, completed theses are always full of assumptions and limited in scope. One of the most significant assumptions made in this thesis is that it is possible to learn something about multistakeholder processes from their participants. While not all participants can frame their comments based on extensive theoretical knowledge about public participation, this does
not imply that their comments are insignificant. On the contrary, public participation theory is often repetitious and self-referential, and benefits from new ideas.

This is a retrospective look at a process which was already complete by the time I had begun my research. Thus, while I benefited from the reflectiveness of many of the interview participants, I was not able to actually observe or participate in the meetings that people described to me. I have also excluded some people in positions of higher authority in the bureaucratic organizations involved, who may have insight (or comfort in speaking to) the "behind the scenes" negotiations which were only hinted at by participants. Given its focus on a particular process, the thesis also excludes members of the public that were not directly involved, as most would have a limited understanding of the day-to-day operation of that process.

The scope of the thesis is also limited by its case study approach, in that the conclusions may not have a definitive impact on theory. On the other hand, a detailed look at a case study can provide insight which is difficult to obtain if one is analyzing a large number of case studies together. I also make some general comments on public participation theory by reflecting on the effectiveness of some of the criteria I used in the evaluation of the case study. I emphasise the importance of thinking about the AWUP process as a pilot to the provincial WUP program, which means that lessons learned in the case study should be passed on to the policy level.

My own background in electrical engineering has also had an impact on this study, in the assumptions I have made, the topics I have focused on, and those that I did not. My background has influenced the way in which I see multistakeholder processes, as intersections of technical, political and public discourses. It could be that my background blinds me to occasions when technical information is not relevant and multistakeholder processes boil down to pure politics. However, it is unbelievable to me that one could study such processes without making reference to the enormous bodies of technical data, reports, and presentations which are part of the everyday world of multistakeholder processes.

I also believe that such a background is also a strength because it makes it much easier for me to interact with physical scientists and engineers. I certainly cannot claim to be an
expert in fisheries biology or environmental economics, although I have a general level of understanding of such areas from my graduate course work at UBC. However, I am comfortable with quantitative and statistical modelling approaches that are commonly used throughout the physical sciences and engineering. This makes it much easier to interview someone who explains their perceptions of instream flows in terms of curves, functions and statistical properties.

On the negative side, I was carrying the baggage of an electrical engineer accustomed to making observations using voltages and frequencies rather than words. While I may not have been the most skilled interviewer during the thesis research, I do think that my skills improved over time. For example, I became much more comfortable with people as I progressed through the interviews. I also found that for some interview participants, my interest in their perspectives overcame some of my lack of polish. Many interview participants indicated that they were pleased to have an opportunity to share their experiences.

1.5. Thesis Structure

This chapter gave an overview of the goals of the thesis, and described the approach and methodology for achieving those goals. Chapter 2 describes the role of organizations in environmental management. It begins by expanding on the concept of “organizational image”, a key way in which individuals relate to organizations. In this chapter, I describe three roles played by individuals within organizations involved in the environmental management context: experts, managers and lay people. The focus is on the view of knowledge characterized by each of the three roles, and the interactions that occur between individuals playing these roles. Chapter 3 reviews the role of public participation in environmental management. In order to provide a basis for analyzing the organizations involved in multistakeholder processes, I develop a conceptual framework which links organizational images with public participation theory. I also develop an analytical framework for evaluating multistakeholder processes in terms of how well participants are involved in both policy making and knowledge generation. This framework is based on a synthesis of public participation literature and the literature review on expert, managerial and lay knowledge in Chapter 2. Chapter 4 describes the policies and legislation that affect
rights of various organizations to manage water, and traces provincial government policies related to the review of existing water rights.

Chapter 5 begins the analysis of the Alouette Water Use Plan case study, with an overview of the history leading up to the process, as well as the chronology of events within the process. In Chapter 6, I apply the "organizational image" conceptual framework to some of the more prominent organizations involved, resulting in a spectrum of images for each. Chapters 7 through 10 evaluate the AWUP process using the analytical framework developed in Chapter 3. Chapter 7 analyzes the appropriateness of the objectives and methodologies of the ASC process and technical studies, while Chapter 8 evaluates the ability of the process and studies to accommodate diverse knowledges. Criteria which affected the building of credibility and trust are assessed in Chapter 9; the final decision-making and implementation stages of the Alouette Water Use Planning process are evaluated in Chapter 10.

Chapter 11 summarizes the key strengths and weaknesses of the AWUP process. It also briefly re-examines the analytical framework and public participation literature in the light of conclusions from the case study. Finally, I make recommendations about improving Water Use Planning, at the level of individual processes, technical studies in support of individual processes, and overall provincial policy.
2. STUDYING ENVIRONMENTAL CONFLICTS THROUGH ORGANIZATIONS

2.1. Studying Organizational Culture

Organizations, and the ways in which people act within organizations, are key to understanding how environmental management actually takes place. Although other more abstract factors may also be important, such as worldview, view of authority, and trust in experts, and risk-averseness may be important in explaining attitudes towards the environment, the study of organizational culture provides a somewhat more grounded approach. Of course there are many different ways of studying organizational culture, but the organizations themselves are fairly well recognized entities, both by their members and those outside. Individuals often use their organizations as reference points in explaining who they are, why they have acted in a certain way, and in evaluating the behaviour of others. My analysis is based on the premise that it is the culture of those organizations that provides that frame of reference.

I define culture as a common set of assumptions which both guide our behaviour and give us the ability to make sense of the world we live in. It is not too far from Alfred Schutz’s (1967) “stock of knowledge at hand”, the common frame of reference we obtain when we join a social group, as a child in a family, a new employee in a job, or a student at school. This is the knowledge we usually take for granted, which provides us with stability in a world in which there are a multiplicity of things to observe, interpret and act on.

Schein (1992) describes organizational culture as possessing various levels (Figure 2.1): at its most outward level, it consists of artifacts -- words, objects, visual representations and the like. Below that lie values, strategies and goals, which embed those artifacts in a richer context of moral judgements and rationales. Digging deeper are the basic underlying assumptions which motivate both the values and artifacts, which is the non-negotiable part of culture. It is acceptable to disagree about values; basic assumptions are generally not open to discussion. So, for example, disagreements over values may result in conflicts and arguments, whereas disagreements over basic assumptions may not result in any meaningful dialogue at all.
However, this version of culture in which there is a single organizational culture which describes the entire organization is perhaps a little too simplistic. A somewhat more sophisticated way of thinking about organizations is to think about the metaphorical aspects of organizations. One of the most well known works in this area is Gareth Morgan's *Images of Organization* (1986). He described eight metaphors in complex detail, a conceptual framework which is detailed beyond the scope of this study. Instead of using all eight, I have chosen to limit my study to three metaphors described by Susan Wright, in her introduction to the *Anthropology of Organizations* (1994), which are a subset of Morgan's.

The first metaphor, *organization as machine*, has roots in Frederick W. Taylor’s “scientific management”, a method for maximizing work efficiency by observing and analyzing individual jobs, and setting standards for “the best way” of carrying out that work (Holt, 1993). Under this metaphor, organizations are thought of as closed systems, composed of various sub-units which each perform specific functions. All are held together by a manager’s central control, with each worker performing like a part in the machine.

This focus on the formal organization began to be questioned in the 1920's and 30's, through experiments carried out by Harvard University's Committee on Industrial Psychology, led by Elton Mayo (Roethlisberger and Dickson, 1939). These experiments were intended to test principles of scientific management by measuring the productivity of workers in various specific tasks, but instead resulted in the researchers rejecting the principles. The research resulted in the discovery of the so called “Hawthorne effect” -- the output of the workers increased no matter what changes were made. The researchers attributed this to changes from the usual working conditions in the study groups; for example, the workers in the study group formed more tightly knit friendships and began to take more initiative in their relationship with their supervisors.
Further study illustrated that social groups on the shop floor could very strongly influence the work behaviour of individual workers. These studies involved anthropologist Lloyd Warner, a student of Alfred Reginald Radcliffe-Brown. Using Radcliffe-Brown's concept of a social system -- the interactions between people which formed a systemic whole -- the group studied a small team of workers who wired, soldered and inspected switches for telephone offices. Two informal cliques developed which organized betting, group candy purchases and other diversions when there was a lull. The variations and discrepancies between the performance of workers were explained in terms of this informal organization, which functionally explained how things "actually worked" on the shop floor, as opposed to how they supposedly worked according to the formal system (Roethlisberger and Dickson, 1939).

This type of work generally fits under Wright's (1994) second metaphor, *the organization as organism*. The image of a biological or ecological system transformed the organization from a mechanical to a living thing. Here, the formal and informal systems begin to interact -- the concept of needs was extended beyond the productivity or output of the organization, to the workers themselves. These needs have to be satisfied, like the needs of a biological organism in an ecosystem, in order for the whole system to function smoothly. Thus, a successful organization is one which encourages cross-departmental links (in contrast to hierarchical links), resulting in the integration of the various needs within different departments to reach a state of "healthy equilibrium".

The third metaphor, *organization as culture*, is now common in organizational studies. Following Schein's model in Figure 2.1, the culture of an organization could be simply described as a list of attributes, shared values or assumptions which a group consensually holds. This definition suggests a monolithic and often static set of assumptions or values.

A fuller development of the concept of organizational culture is to think about the formal organization as being one culture, while the workforce is another culture (or perhaps multiple subcultures). However, this too is limited in that it is difficult to differentiate and decide who belongs to which sub-culture. As illustrated by Trish Nicholson's (1994) research on the interaction between western models of bureaucracy and indigenous systems in a regional development project Papua New Guinea, organizational cultures are not monolithic and bounded units. In that case, these two different cultural systems were not being adhered to by two different sets of bureaucrats, but were two sets of norms that
the same bureaucrats used in making decisions about how to run the project. At times they would appeal to indigenous norms, at others they would rely on western bureaucratic values.

By defining organizational culture as one discourse of many that is used to construct the organization, the concept of an organization moves from an objective, unproblematic entity, to a dynamic and multi-faceted one. The attention of the researcher switches from describing what organizations do, to describing how organization is accomplished, and what it means to organize (Smirich, 1983). This is particularly important in Canadian environmental and resource management, which Dorcey (1986) describes as a governance process involving loosely coupled organizations and arenas. In other words, many actors from government, the private sector and the broader public are involved in various formal and informal arenas of discussion and negotiation. In order to understand how these different organizations and people relate in a loose governance system, it is important to understand the different organizational images that persist over time, as they are one of the means used to make sense of the shifting landscape.

I will return to the images of organizations in the next chapter, when I begin to make some linkages between the images of an organization and the governance system. The remainder of this chapter is focussed on some of the broader sub-cultural divisions within organizations involved in governance, namely expert, managerial and lay public. Finally, some consideration is given to the interaction between these sub-cultures. What follows should be read with the assumption that the boundaries between these three categories are dynamic, and that the categories are not boxes into which individuals neatly fall, but roles that individuals play that may alternate or change over time.

2.2. **Actors in Environmental Conflicts: Experts, Managers and the Lay Public**

At a level below that of organization are the individuals who play particular roles. Some of the roles of importance in environmental conflicts are experts, managers and (increasingly) lay public. These categories are fairly problematic, particularly "lay public", which probably has more meaning for those in powerful organizations trying to make sense of the world around them than those who are labelled with it. Further, many individuals play a hybrid role, such as technical manager, lay experts and managers of NGO organizations.
2.2.1. Expert Cultures

It is difficult to talk about environmental management without referring to the formal science of experts. After all, most environmental problems, at least those that are able to maintain respectability are those which are able to provide scientific explanations for their existence. Global warming, ozone layer 'holes', extinction of rare plant and animal species, radiation poisoning from nuclear accidents and many other environmental concerns were initially identified through the observations of scientists. Additionally, and in contrast to many other social problems, environmental discourses maintain their power as social discourses by maintaining a connection with scientific research and claims. For example, environmental sociologist John Hannigan suggests that social problems such as "date rape" may often cross-over from a "medical" discourse to a wider public discourse, such that they "derive much of their rhetorical power from moral rather than factual argument" (Hannigan, 1995).

In contrast, environmental problems derive much of their power from scientific findings and claims, although they remain highly morally charged.

On the other hand, science itself is often the focus of environmental controversy, in the critique of the technological society embodied within many environmental discourses. For example, environmental non-government organisations (ENGOs) such as the International Rivers Network (1997) which oppose the construction of large dams throughout the world critique dam building not only for its impact on the natural and social world, which scientific knowledge may serve to assess, but for the naive assumptions made by dam builders as to the needs and desires of the citizens of the Third World countries where most dams are now being built. They juxtapose the ideal of technological progress, with its allies of scientific and technical knowledge, against the folk wisdom of the indigenous or peasant peoples affected by large dams, in a defense of a simpler way of life. In a sense, it is not the mere association with scientific claims which gives environmental problems their power, but the tension embodied within the environmental discourse between a desire for scientists to come up with "the facts" about environmental problems, while at the same time rejecting science because environmental problems are holistic problems, having spiritual, social and economic dimensions as well.

Before launching into the role of science in environmental management and its other public faces, it is important to look at some of the foundations on which science is constructed.
2.2.1.1. Some Philosophical Foundations

Science, if we are to believe the textbooks, is about generating and testing hypotheses about the physical world around us. Because it is about the physical world, the role of the observer scientist is to reduce her role to the point where the hypothesis testing experiment can be replicated by others in order to "prove" that the result is a credible one. It is a skeptical form of knowledge creation, always testing, never holding any belief so dearly that it cannot be discarded. As Karl Popper (1979) was fond of claiming, its truths were partial and temporary, in that hypotheses could be falsified, but never proven to be correct. No matter how many times something happens a certain way, the opposite reaction is not precluded.

There is a second discourse about science, that mainly circulates in the social sciences, which tells a completely different story. Here, science is not about creating knowledge, but about reinforcing the paradigm that one has about the way the world is organized. Although the word "science" is not generally used, it is replaced with a word with similar meaning but more derogatory connotations: "positivism". Positivism has a long history, from Comte, Saint-Simon, Mach to the logical positivists of the Vienna Circle such as Rudolf Carnap, Moritz Schlick and Otto Neurath. Although this history has some relevance to the present day discussions on positivism, the word has become one that is largely formed by its critics, and does not really identify any particular historical or social movement. As has been noted by Roscoe (1995), Giddens (1974) and others, it has become a term which is applied to so many different theories, methods and writings as to become almost completely useless. However, there seem to be a number of characteristics of "positivism" which its critics draw together. Box 2.1 summarizes some key characteristics as identified in Hammersley and Atkinson (1995), Roscoe (1995), and Lincoln and Guba (1985).
In other words, positivism conforms to the textbook style description of how physical science works, a narrow, shaky foundation indeed. It is fairly clear that many of these characteristics do not conform with everyday experience of scientific practice. Indeed, since the early 1960's when science studies went beyond armchair theorizing to studying everyday scientific practice, very different conclusions have been arrived at than the story told by positivism. Since Kuhn’s *Structure of Scientific Revolutions* (1970b), a plethora of studies have emphasized a completely different process, whereby knowledge does not gradually accumulate as truth claim is added to truth claim (or falsification to falsification), but in which knowledge depends very much on the paradigm that one is working under. In other words, in periods of stability, it may appear that the process of scientific discovery is one of adding to a growing body of knowledge; this process can also be thought of as the development of solutions to the problems that the present paradigm or way of seeing the world lays out.

This adoption of a paradigm is a revolutionary process, which involves persuasive negotiation between groups of scientists who hold (at least to some extent) incommensurable views of the world. This negotiation can be rational in the sense of involving mutually agreed upon criteria, but no choice is logically forced on the individuals as the "... debate is about premises, and its recourse is to persuasion" (Kuhn, 1970b).

Kuhn rejects any simple truth correspondence between theory and reality, stating that, "Scientific theories, it must be remembered, attach to nature only here and there" (1970a). Instead, during the periods between revolutionary periods, scientific practice is concerned

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**Box 2.1. Characteristics of Positivism**

<table>
<thead>
<tr>
<th>Characteristics of Positivism</th>
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<tbody>
<tr>
<td><strong>Observable and Knowable Reality</strong></td>
</tr>
<tr>
<td>There is a single and knowable reality.</td>
</tr>
<tr>
<td><strong>Universal Laws</strong></td>
</tr>
<tr>
<td>Reality can be described by fixed and universal laws.</td>
</tr>
<tr>
<td><strong>Neutral Observation Language</strong></td>
</tr>
<tr>
<td>Theories should be based on observations involving no theoretical assumptions.</td>
</tr>
<tr>
<td><strong>Independence of Observer and Observed</strong></td>
</tr>
<tr>
<td>Following (3), because observation is a neutral, value free exercise, the independence of the observer and observed is key.</td>
</tr>
<tr>
<td><strong>Hypothesis Testing</strong></td>
</tr>
<tr>
<td>In order to create knowledge, and to facilitate neutral observation, hypotheses are asserted and empirically tested.</td>
</tr>
</tbody>
</table>

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with solving puzzles set out in the paradigm or disciplinary matrix a scientist is a part of. Thus scientific practice is not about the discovery of truth, but of carrying out the work logically following from the paradigm one holds. Unlike Popper's process of conjecture and refutation, this is a process which is essentially conservative, guided by community norms rather than bold hypothesising. Likewise, the evolution of scientific theories does not lead towards ever better approximations of the truth, but to paradigms which allow more puzzles to be solved.

Further work in science studies has tended to focus on a less grand scale than Kuhn's, taking a case study approach to examine how particular scientific knowledge claims are formed, how scientific disputes are settled, and how everyday practices affect research results and practices. The common thread in much of the work is the study of the process by which scientific knowledge claims, to use Kuhn's terminology, become "normal". In other words, when do ideas shift from being tentative (or controversial) hypotheses to unquestioned parts of the background stock of knowledge for a scientist? Using ethnographic methods, some have taken a more phenomenological approach (e.g. (Lynch, 1993; Lynch et al. 1983; Woolgar, 1983; Lynch, 1985)), where the end product is a detailed and dense description of everyday scientific practice rather than theories about that practice. One of the first examples was Michael Lynch's study of the work going on in a university psychobiology laboratory (1985), originally written in 1979 as a Ph.D. dissertation under Harold Garfinkel, who is credited with formulating ethnomethodology as a social science research method. The question for Lynch becomes how to get the "... ordinary life from under the shadow of science and scientific rationality" (1985). This is an attempt to get past both the "purified" account of scientific method and practice, to study the day-to-day process whereby scientific truths are constructed. Thus the central theme is how the scientists make sense of the complex world around them and make that complexity meaningful rather than simply chaotic.

Others have been more concerned with analyzing the underlying mechanisms and interests in the process of the creation of scientific knowledge. This latter focus can be seen in the work of those such as Harry Collins (1992), whose work concentrates on controversial science, from high power physics, in the case of the detection of gravity waves, to parapsychological phenomena, such as the ability of plants to feel 'pain'. His work, is a detailed look at how controversies end, from which he develops some theoretical
concepts. For example, he develops the concept of experimental regress -- a paradox which arises for those who want to make replication the test of scientific truth. Because experimentation is a matter of skilful practice and tacit knowledge, there is no clear cut way of judging whether or not an experiment has been done well enough. Experiments are seen as tests which are supposed to reveal a correct outcome; however, because no one has independent access to 'reality', one is never sure what the correct outcome is until a good experiment has been performed. This leads to an infinite regress, which can only be broken by some test of the quality of the experiment, often using techniques such as surrogate phenomena or calibration. For Collins, these techniques are not tests of the experiments themselves, but rather, they are ways of controlling interpretative freedom, and thus supplying the criterion for ending the debate.

Although these two approaches, as represented by Collins and Lynch, are very different, they do emphasize several common points as well. First, there is always much more going on in scientific research than simplistic accounts of hypothesis testing would lead us to believe. Meaning always depends on a web of interactions. Second, most research depends on a "bootstrapped" process, whereby a phenomena being studied is first constituted in the observational "texts" being interpreted; as the evidence solidifies in its favour, the phenomena transforms itself into an independent entity "out there", which is seen to have given birth to the observational "texts" (Roscoe, 1995).

2.2.1.2. Mandated Science

While it is interesting and informative to consider the philosophical foundations of science, and some of the ways in which scientific practice has been studied by sociologists, science in the public domain has a somewhat different flavour. To understand science in public life, it is important to look at the site at which science and public life intersect.

To begin with, the move into the field of "public science" changes the field of actors and organizations that are of influence. Other institutions, such as private businesses, government regulatory agencies, public interest groups, and a whole plethora of community based organizations may become involved. Information is thus not simply generated by scientists, and then diffused into the general public. Rather, organizations with other agendas become involved in the knowledge generation and interpretation process. For example, managers -- whose interests are often in the use of technical
information for the purpose of making or protecting economic benefits, making decisions or generating policies -- are interested in scientific information in certain ways. They don't want to know about all of the complexities and uncertainties, but those ones which will affect their day-to-day world. In other words, they are interested in “policy relevant science”. On the other hand, public interest groups may also have particular concerns, and may see that a particular scientific claim can be used to bolster a position in a way which was not understood when that research was carried out.

Liora Saltar characterises this kind of public science as “mandated science” (1988), and has identified four of its characteristics which affect the possibility of incorporating it into policy decisions. These are given in Box 2.2, with a brief explanation of their idealised form, based on what could be a positivist account of science, which becomes paradoxical when the actual practice of mandated science is looked at.

**Box 2.2. Paradoxical Characteristics of Mandated Science**

<table>
<thead>
<tr>
<th>As An Idealised Science</th>
<th>IDEAL</th>
<th>PARADOX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective and value free</td>
<td>Involves a close relationship with values</td>
<td></td>
</tr>
<tr>
<td>Confirmed through consensus &amp; open debate in scientific community</td>
<td>Often not open to peer review in the 'grey' literature.</td>
<td></td>
</tr>
<tr>
<td>Credible because it follows scientific methodology.</td>
<td>Conflicting 'expert' reports not resolved by further study</td>
<td></td>
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<table>
<thead>
<tr>
<th>As Imbued with Legal Considerations</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>“Good science” should be carried out without regard as to legal implications</td>
<td>Scientists must act in a legally informed manner, and reach conclusions according to legal standards of proof.</td>
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</table>

<table>
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<tr>
<th>Character of Debates</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Scientists must adhere to the conventions of the scientific community</td>
<td>They must be aware of how others will use their work to forward their own goals.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Moral Issues</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientists must be independent &amp; objective.</td>
<td>Their work may have far reaching social, political and moral considerations.</td>
</tr>
</tbody>
</table>

adapted from (Saltar, 1988)

Saltar rejects the ideal of mandated science as a value-neutral knowledge gathering activity, emphasising that it is an activity which is tangled up in an ambiguous relationship with science, values, law and public policy. For example, she rejects the rationalist model
suggested by Lowrance (1976) in the area of risk, which separates scientific assessment measuring the severity of risk (risk assessment) and the decision on how risk should be regulated (risk management), thus separating science and policy making into two sphere of action. This remains an ideal for many scientists who feel that scientific evidence has been ignored or even covered up by public policy makers (Hutchings et al. 1997). On the other hand, managers often complain that scientists don't understand the full economic, legal or policy implications of their work.

2.2.2. Management Knowledge, Management Culture

Management culture is one which is largely ignored by those who study scientific practice, as well as those who study lay interaction with experts. Liora Saltar's previously described concept of "mandated science" -- science which is carried out to answer certain public policy questions -- is a start. It gives a sense that many scientists, especially those involved in research for public policy, find themselves becoming a part of or interacting with governmental, industrial, non-profit, and other organizations. Those organizations have their own mandates and reasons for being, which rarely have anything to do with carrying out rigorous research.

Broadly, there are three kinds of organizations which are involved in environmental management. These are:

1. Public, or governmental organizations.
2. Business, or private sector organizations.
3. Non-profit, or NGO organizations.

Public, or governmental organizations usually play the role of regulator, setting limits on certain aspects of the operations of private sector organizations. Private organizations, on the other hand, are organizations which have a profit-making objective. The manager is a key player in both of these kinds of organizations. Increasingly, managers are playing a role in non-governmental organizations, which have developed bureaucratic structures parallel to government organizations. In the Canadian context, First Nations also play an important role, although they are difficult to categorize. In some contexts, First Nations are organized along the same lines as government bureaucracies, with managers playing an important role, while in others, there is less organization and more informal, community based management of environmental resources.
Obviously, a manager in a public, regulatory organization has different objectives than one in a business. Likewise, each faces different constraints. The profit motive drives business managers to search for ways in which to improve their bottom line and show good dividends to investors. On the other hand, government managers may be faced with the problem of doing more with a fixed amount of resources. One searches for ways to enlarge the pie, while the other tries to manage the ways in which the same pie is divided.

There is much in common, however, in their roles. As an example, the key elements of management have been compiled by Hales (1993), which he condensed from a number of sources within the management literature. From the way that he lays out the elements, the process is clear: the first step, deciding and planning what is to be done, is followed by a number of other steps designed to ensure that these plans are carried out. Finally, there is an element of feedback, in which there is ongoing comparison of results with objectives to ensure compliance (Figure 2.2).

Regardless of whether the manager is in government or business, these kinds of roles are often played. This differs widely from the role of technical experts, which is often seen in a positivistic light as merely the generation of "true information", hypothesis testing and the like. On the other hand, the managerial process described above is one in which the desired results are known, and what is unknown is the process by which those results are achieved. Thus, a manager may worry less about whether a certain piece of information is true, and more about whether that information will have an impact on the intended result. That is not to say that managers do not worry about questions of reliability, but rather that their concerns are
generally driven more strongly by the implications of information. An interesting example of this comes from Donald Mackenzie’s study of the development of guided missiles (MacKenzie, 1990). In looking at the different groups involved in this development, he came to the conclusion that the perception of uncertainty in knowledge claims was in fact much lower for managers than for the scientists involved in the actual research which developed that knowledge. Those who were alienated from the research and management organizations tended to perceive the greatest uncertainty of all. He characterized this qualitative relationship as the “certainty trough” (1990) (Figure 2.3). In the sociology of science terms, the scientific knowledge has been ‘black boxed’ (Latour, 1987); in other words, the uncertainties involved in creation of the scientific knowledge have been eliminated from the view of managers. My interpretation of this trough is that managers are driven by other objectives, in particular financial objectives. In the culture of managers, these objectives are placed above any relating to the reliability of knowledge.

![Figure 2.3 The Certainty Trough](adapted from MacKenzie 1990)
Mackenzie's characterization of lay people (who are far from the site of knowledge production) as being the most skeptical of expert based knowledge is perhaps too broad. The opposite tendency is also possible, where people indicate disinterest in "technical" questions and let experts decide how to settle technical disputes. Obviously, there is more to understanding lay responses to environmental issues than simply the relative alienation of lay people from institutions.

2.2.3. Lay Knowledge, Lay Culture

That lay knowledge is somehow important in environmental policy circles has been often hinted at, but what lay knowledge is and how it will or can contribute is not often addressed. In fact, the entire concept of lay culture -- "The Public" -- is one that suggests the vantage point of one outside the "masses", of the perspective of a scientist or manager gazing out from their offices and laboratories onto what appear to be swarms of slightly misinformed and confused people.

Given the broad nature of environmental management problems, who the lay public is varies considerably. In one case it may be farmers, in others it may be forestry workers, fishers or people who happen to drive their cars on a certain street. In general, I am defining lay culture as everything that doesn't fall under either expert or managerial cultures. This includes people who belong to non-governmental organizations that have an interest in the environmental issue at hand, as well as those who are not so organized. In the environmental management and planning field, it has become common to refer to these people as "stakeholders", a word coined by Freeman in the management literature. He defines a stakeholder as "any group or individual who can affect or is affected by the achievement of the firm's objectives" (1984) p. 25. He suggests that by making decisions with both those who can affect a firm's objectives, as well as those who may be affected by the firm, more acceptable decisions would be made. The decision to involve those who can affect a firm is obvious: rubbing such a person or organization the wrong way would obviously affect a firm. He justifies involvement of those who may be affected by a firm in terms of future empowerment, explaining that, "groups which 20 years ago had no effect on the actions of the firm, can affect it today, largely because of the actions of the firm which ignored the actions of these groups" (Freeman, 1984). Although this definition of a stakeholder may be seen as empowering certain groups, it is widely open to interpretation and raises all sorts of questions as to how one sets the boundaries for who affects or is
affected by the decision enough to be considered a stakeholder. There may be groups or individuals that feel they are affected by a certain decision, but who are excluded because those who are deciding who the stakeholders are can effectively preclude them. More importantly, a group or individual may feel strongly about a certain decision, but may not in some functional sense be "affected" by that decision.

In practice, the dominant definition of "stakeholder" is someone who can influence an organization. That is, the increasing involvement of ENGOs, First Nations and other organized groups in environmental decision making has been because of the ability of such groups to affect decision makers through civil disobedience, court action, media coverage and other means. Although at times the reason that is given for the involvement of stakeholders in environmental decision making is their representation of certain parts of society, those people who are affected by a decision but have little power to affect a decision are often poorly consulted. This can be largely explained by the organizational culture of bureaucracies, which have traditionally acted as public servants without ever actually having to deal with the public. It is extremely difficult to change that basic outlook, although not impossible. Thus any changes in the way in which bureaucracies interact with the public will involve power struggles, either from outside organizations trying to break through, or from insiders who are willing to challenge bureaucratic thinking.

There are a number of ways in which lay knowledge can be conceptualized, which have diverging implications for its use in public policy decision making. One divides the decision making process into two halves -- information gathering, which is carried out by experts, and judgement making, which may be carried out by the lay public. However, these kinds of divisions are both arbitrary and reinforce a positivist version of science, in which it is possible to uncover information without making any value judgements.

2.2.3.1. Lay Knowledge as "Values"

One way of characterising lay knowledge, is as pure subjective knowledge or "values", or at best subjective judgement about "the facts". The ideal is the individual making purely "subjective" choices about the value of the "objective" material world. These subjective choices can be analysed by looking at the underlying values people hold, the categories of psychology which are supposed to explain why people make the choices they do, at least in a pragmatic sense. This has been carried into the management literature, in areas such
as "decision analysis" (Raiffa, 1968), which deals with making decisions under uncertainty and frames the problem in terms of individual utility functions, mapped onto descriptions of the world defined in terms of probabilities.

Within environmental literature, this approach first became popular in the area of "risk perception" or "risk acceptability". For example, psychometric surveys rating environmental risks and hazards have been carried out (Slovic et al. 1979), which attempt to quantify or at least rank the perceived risks of the publics. These kinds of surveys tend to produce results which indicate that the public's perceptions of risks are very different from the experts. This is generally explained by looking at qualitative factors which are more important to the lay publics, such as the catastrophic potential of hazards (even if 'calculated' risks are small), the degree to which risks are weighted by their voluntary or involuntary involvement. While I would not underestimate the importance of this work in expanding the view of many risk analysis experts beyond "objective" conceptions of risk, much is also lost in such a conception. I would characterize these as follows:

*Naive assumptions about both the physical and social world.* Scientific definitions of risk depend on certain assumptions about both the physical and social world. Assumptions are made about the regularity of human practice, as in the example given by Brian Wynne where a scientific Pesticides Advisory Committee commented that "pure 2,4,5-T offers no hazards to users, nor to the general public . . . provided that the product is used as directed" (Wynne, 1992). This assumption had a strong influence on risk calculation, but did not take into account the actual farm applications of the pesticide, but instead assumed the controlled conditions produced in the laboratory. Many indeterminacies related to the process of how pesticides were manufactured and distributed were also largely ignored. In other words, the regulatory bodies were ignoring a whole body of knowledge about how herbicides were used by farmers and farm workers, and what limitations, weather conditions and economic constraints they faced. They also ignored knowledge about the actual practice of herbicide manufacture and distribution, activities dependent on non-ideal social organizations.

*Conceptual categories are defined by the researcher/manager.* A second, but nonetheless crucial point is that this type of approach tends to encourage the researcher/manager to predefine the categories of interest. In other words, by providing structure to the research or decision making process, it is possible and indeed likely that
the “indigenous” meanings of risk, environmental health, etc. are ignored. If lay knowledge does not jive with the dominant science-based prescription of the world, the tendency is to write off lay knowledge as irrational, rather than rational but not in the scientific sense. As Wynne points out, “… this only exacerbates the public’s sense of being threatened by institutions that do not respect its identity, rationality, and legitimate standing in the issue in question…” (1992).

Thus while conceptualizing lay knowledge as “values” is certainly better than ignoring lay knowledge altogether, it has certain weaknesses. One way of moving forward is to think about lay knowledge as being about both “facts” and “values”.

2.2.3.2. Lay Knowledge as “Facts”

The knowledge of lay people can also be thought of as important to the development of environmental science as well as to the process of environmental decision-making. Given that the process of formal science is in reality both political and social, and that experts have no monopoly on the truth, it is logical that lay people should be involved in the process of science.

Certain areas of lay knowledge -- also referred to as local knowledge -- have been recognized more than others. The traditional ecological knowledge (TEK) of indigenous peoples is widely cited as a body of knowledge that scientists should learn from (Sadler and Boothroyd, 1994; Lalonde, 1991; Gunn et al. 1988; Freeman, 1992). For example, the recent Northern River Basin Study, which examined the impact of human activities and development in northern Alberta and the Northwest Territories, included a traditional knowledge component (Bill et al. 1996). This component was intended to document traditional ecological knowledge and demonstrate its value to scientific research and to future predictions of environmental change. Another example is the “Back to the Future” project being carried out at the Fisheries Centre at the University of British Columbia, a modeling project intended to combine present day ecological models of the Georgia Strait with TEK of aboriginal peoples of BC, in order to reconstruct the fishery of the past (Fisheries Centre, 1997). The intent was to create two historical models, which would integrate historical fishery catch data and abundance estimates from aboriginal fishers. The models were created to simulate conditions approximately 100 years ago (1897), and approximately 600 years ago (1397, well before European contact). However, this
integration did not go as far as was hoped, given that the historical knowledge of fishers was difficult to convert to quantitative information useful for ecological modelling\(^1\).

The knowledge of the non-indigenous lay people is also discussed in the environmental management literature, although with less frequency than indigenous knowledge. This is often referred to as *local knowledge*, which is the term I will use. In general, local knowledge is seen as arising out of sufficient hands-on experience in close contact with the environment (Johnson, 1992). For example, Cabral (1996), described the role of the local knowledge of farmers in the environmental impact assessment hearings for a pulp mill in Northern Alberta. Two of her sub-categories of local knowledge are particularly relevant to this discussion: *experiential knowledge*, based on what farmers did and where they lived, and *scientific and technical knowledge* that farmers had about the formal science of agriculture, the pulping process and environmental assessment. Although she found that local knowledge had impacted the decisions of the Review Board carrying out the hearings, local knowledge was dropped when a final review was carried out by a scientific review panel.

Thus while there are often good intentions to make use of the knowledge of lay people in managing environmental resources, the knowledge of both indigenous and non-indigenous peoples is often engulfed when the discourse shifts to more technical settings. There are also many questions about how the integration of science and lay knowledge can take place without science becoming overly dominant.

### 2.3. Interaction Between the Cultures: Perils and Possibilities

*The image of the past (or the primitive, or the classic or the exotic) as a source of remedial wisdom, a prosthetic corrective for a damaged spiritual life . . . is mischievous because it leads us to expect that our uncertainties will be reduced by access to thought-worlds constructed along lines alternative to our own, when in fact they will be multiplied.* (Geertz, 1983b)

The claim that Geertz makes in the context of interpretive anthropology could easily be made in the context of activities like multi-stakeholder negotiations, which bring together people with different world views. Although the differences may not be as stark as in the case of bringing together the wisdom of "exotic" cultures with Western culture, the principle

\(^1\) Personal communication, Scott Wallace, Fisheries Centre Graduate Student, Nov. 16, 1998.
remains the same: bringing together people with different ways of viewing the world may be seen as a good or interesting thing to do, but it will not be one which simplifies our lives. The resulting discussions will be enriched, but that enrichment comes at a cost of negotiating common understandings. As suggested by Geertz and others, the process of cultural interpretation is not merely a description of cultural norms, events or stories but a translation of those descriptions from one way of seeing the world into another, what he refers to as "symbolic systems". It is the translation of both individual cultural truths and their context, and the re-embedding of those truths into that context which is the aim of such an operation.

2.3.1. Expert-Managerial Interaction

The previous section on expert cultures and mandated science introduced the interactions between experts and managers. Figure 2.4 illustrates these cross currents between scientists and managers.

![Figure 2.4 Expert-Managerial Divide](image)

Liora Saltar's paradoxical principles are summarized further in Box 2.3. I have focussed the list by concentrating on the expectations which managers potentially would have of their technical staff. Although these are far from radical, they do require scientists to move outside of areas of their technical expertise, into legal, moral, and policy realms which they may be uncomfortable in.
Many of the conflicts that arise within mandated science communities—such as the conflict that arose between fisheries scientists within the Department of Fisheries and Oceans and their managers concerning the flows in the Nechako River in central BC—stem from the internal contradictions within this list. In the case of the Nechako, the Department of Fisheries and Oceans had signed an agreement with Alcan and the BC government to allow for flows in the river below that which many of the scientists thought were acceptable (Hutchings et al. 1997). Thus the principle of adhering to what they thought were acceptable methodologies and practices (such as openness to peer review) were in direct conflict with the requirement to function in a legally informed manner, since such information would only serve to erode a legal agreement signed by their own agency.

### 2.3.2. Lay/Expert Interaction

*We may be on the eve of a new age of enlightenment. When a scientist says he doesn't know, perhaps there's hope for the future! (National Farmers' Union local representative quoted in (Wynne, 1995))*

Much has been written on the interaction between the lay public and experts, for example, in the area of risk perception. One theme which runs through some of the literature is a frustration from scientists about the public's unwillingness to accept scientific information at face value. In what seem to be irrational reactions, for example, people tend to develop trust in information which has a close personal impact, rather than broad trends (Axelrod and McDaniels, 1998). Thus statistical approaches to measuring the risk of certain activities are often rejected in favour of more local examples which may not have the same statistical significance, but clearly seem to have an impact at a personal level. Some experts react to this kind of response with horror, pointing to the irrationality within the public and its need to be educated about the "reality" of these problems, while others take a slightly softer approach and assume that there are psychological aspects of such risks (voluntariness of risk, unknown or unknowable aspects of risk, number of people involved).
Other workers in the area of risk have built on the second reaction to public “irrationality” to point out that the cues that non-experts use in interpreting technical information often do have rational explanations. For example, Brian Wynne emphasises that the institutional source of knowledge is often a key criteria which is used for judging the credibility of science (Wynne, 1996; Wynne, 1995). Clearly, if groups in the lay public understand that an institution has a vested economic interest in the information it is producing, it is not irrational for them to discredit that information. Figure 2.5 illustrates some of the perceptions lay and expert groups have of each other.

![Figure 2.5 Expert-Lay Divide](image)

From his study on the effect of radioactive fallout on the lives of sheep farmers, Wynne developed a set of criteria with which the lay public judge scientific knowledge. The farmers live and work in Cumbria, in the hill country of northern England, where they experienced radioactive caesium fall-out from the 1986 Chernobyl accident, which contaminated their fields and sheep flocks. Their interaction with scientists monitoring the fall-out is reflected in the criteria which Wynne developed. Box 2.4 shows a list of his criteria, which I have summarized and condensed to six.
These provide some of the tentative criteria which I am using for my analysis of the way in which the lay public and experts interacted on the Alouette Stakeholder Committee. My own assumption is that increasing scientific literacy within the lay public is probably a good thing; however, equally or perhaps more important is the fostering of an understanding of the lay public within the scientific community.

<table>
<thead>
<tr>
<th>Box 2.4. Lay Criteria for the Judgement of Science</th>
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</thead>
<tbody>
<tr>
<td><strong>Truth of Predictions</strong></td>
</tr>
<tr>
<td>Do the predictions of scientists come to pass?</td>
</tr>
<tr>
<td><strong>Understandability</strong></td>
</tr>
<tr>
<td>Is the form of the knowledge as well as the content recognizable?</td>
</tr>
<tr>
<td><strong>Openness</strong></td>
</tr>
<tr>
<td>Do scientific claims and practices pay attention to other available knowledge?</td>
</tr>
<tr>
<td><strong>Reflectiveness</strong></td>
</tr>
<tr>
<td>Are scientists open to criticism?</td>
</tr>
<tr>
<td><strong>Institutional Credibility</strong></td>
</tr>
<tr>
<td>What are the social/institutional affiliations of experts?</td>
</tr>
<tr>
<td><strong>Issue Overspill</strong></td>
</tr>
<tr>
<td>What issue ‘overspill’ exists in lay experience?</td>
</tr>
</tbody>
</table>

(adapted from Wynne (1995))

2.3.3. Lay/Managerial Interaction

Lay/management interactions are dealt with more thoroughly in the next chapter on public participation in environmental management. Like the interaction between lay people and experts, there are plenty of opportunities for misunderstandings between people to develop and conflict to erupt. Thus, various public participation strategies, such as judicial inquiries, information sharing, multi-stakeholder processes and others can be seen, at least in part, as ways of managing the interaction between managerial institutions and the public.

Because of this rationalization, public participation discourses often ironically become privileged discourses. Even if the meetings are open to the public, there are various subtle ways in which the public at large are excluded. For example, even if anyone can attend a multi-stakeholder negotiation, sometimes only those who are seen as official representatives of organized groups can speak. Further, negotiation processes often favour those who have the resources to be at the table -- such as those who are being paid to be there as part of their jobs, as opposed to members of the public who have to volunteer their time.
It is not surprising then that multi-stakeholder negotiations will be reinterpreted in the public domain, often in ways in which the scientists and managers have little control. As noted by Whittaker (1994), this translation of formal decision making, negotiation or legal processes into the public domain necessarily involves the use of more accessible cultural discourses. She describes the use of familiar moral discourses on sacredness and equality surrounding the transfer of Ayers Rock in Australia to Aboriginal ownership, discourses which were used by both those in favour of the transfer, as well as those opposed, to argue their positions in the media.

The translation of policy debates into common cultural discourses is often seen as disruptive from managerial perspectives. Managers react by underlining the need for control and the need to follow official mandates, in order to protect themselves from public demands for greater government openness and public scrutiny. Thus, a middle ground is often proposed by managers, in which they will consult the public, in order to fulfil the democratic desire for openness, while maintaining control over the process. This stance has perhaps less to do with the "chaotic" and "irrational" nature of the lay public than the institutional culture of bureaucracies. Thus, lay publics respond with scepticism to such proposals, for they doubt the ability of bureaucracies to act unless they are forced to act by direct political means. Finally, part of the lay public in such discourses are organized, not merely broad and homogeneous publics. The lack of recognition of such pre-existing community organizations has been a complaint in many multi-stakeholder processes. For example, this lack of recognition was noted as a problem by participants in the Salmon River Watershed Roundtable, a local environmental round table brought together in the area near Salmon Arm, BC (Grant, 1996). Figure 2.6 illustrates these two sets of perspectives.
The interaction between management and lay sensibilities is considered in more detail in the next chapter on public involvement in environmental decision making, which more explicitly considers the interaction between planners or managers and the lay public.

### 2.3.4. Benefits

Attempts at bridging the lay/expert/managerial knowledge divide may be difficult, but what are some of the benefits? From an expert perspective, bridging the gap may lead to an increased ability to communicate research results to lay and management audiences. From a management perspective, understanding expert perspectives may lead to more constructive relationships with scientists, whose concerns with uncertainty and reliable knowledge should not just be written off. Further, management understanding of lay perspectives may result in more productive resolution of conflicts, rather than endless bickering and misunderstanding. From an NGO perspective, understanding how management and experts see the world can only be helpful for those trying to push the institutions to act in a more responsible manner. Finally, building links from experts and managers to the less formally organized public is a longer term project, for it involves understanding an even more loosely defined social world. Perhaps this is where future work lies, in more fully understanding the broader public and its involvement in environmental management.
Bridging the lay/expert/management gap may also lead to social learning, defined by Brian Wynne as learning about the conditional nature of one’s own knowledge and the assumptions and commitments that constitute it (Wynne, 1992). This learning can be extended to learning about other perspectives, and about how other people view the world. Finally, values and identities themselves are further constructed, as these are dynamic and often only become clear when one needs to apply them to a specific situation. Social learning thus involves a learning process, not just about “the facts”, but about what one’s own values about a particular problem are.
3. PUBLIC PARTICIPATION IN ENVIRONMENTAL MANAGEMENT

3.1. Introduction

Lay society plays an ambiguous role in environmental public policy. On the one hand, liberal democracies traditionally see lay society as the ultimate source of political legitimacy. The institutionalised system of voting for legislative representatives is perhaps the best example of this. On the other hand, deep suspicions of "lay society" remain, in its many characterisations as irrational or an impediment to political action. This is particularly true of those who work within the bureaucracy. For example, a recent poll of American federal civil servants found that only 14% of executive civil servants and 13% of presidential appointees felt that the public was capable of making wise policy choices, while over three quarters of both groups answered negatively (Pew Research Center, 1998). Many cited the lack of knowledge in the general public, particularly about the complexity of public policy problems.

This ambivalence about the public is also present in the Canadian context, where interest in public participation has waxed and waned over the years. Public participation has been carried out within a liberal democratic system, which on the one hand fosters, but on the other limits citizen participation. Frank Tester (1992) traces the history of citizen participation in the Canadian context, and outlines three phases in this evolution. The first began at the turn of the century, and revolved around the right to vote and hold public office. Key events included the extension of the franchise to women, to non-property owners at the municipal level, and eventually to registered native Indians. The second phase of participation, which he calls the managerial phase, ran from post-World War II to the mid-60's. It was characterized by a strong commitment to representative democracy. Here, the development of the welfare state, a consensus of left and right wing parties, resulted in the development of various government programmes for the distribution of wealth in Canadian society. Trust in the ability of those in authority, both in terms of politics and science, was a dominant social value.

This changed in the third phase, the late 1960's and early 1970's. This phase was characterized by the growth of social movements questioning authority, centred around events like the Vietnam War, the escalation of the arms race, and concern that human activity was going "beyond the limits" of the world's resources. The phase left an
which has remained to this day in planning literature, Sherry Arnstein's (1969) ladder of public participation (Figure 3.1). Her typology describes the role of citizens in decision-making as running from various forms of non-participation and tokenism to degrees of citizen power. It has been criticized for focusing on citizen control of the existing governance structure rather than actual citizen management (Tester, 1992), and for creating unrealistic expectations that citizens could or should make public policy decisions (McDaniels et al. 1998). It has also been praised for its simplicity, and continues to be one of the most widely cited references in public participation literature (Brenneis and M'Gonigle, 1992; McCoy et al. 1994)

<table>
<thead>
<tr>
<th></th>
<th>Degrees of nonparticipation</th>
</tr>
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<tbody>
<tr>
<td>1.</td>
<td>Manipulation</td>
</tr>
<tr>
<td>2.</td>
<td>Therapy</td>
</tr>
<tr>
<td>3.</td>
<td>Informing</td>
</tr>
<tr>
<td>4.</td>
<td>Consultation</td>
</tr>
<tr>
<td>5.</td>
<td>Placation</td>
</tr>
<tr>
<td>6.</td>
<td>Partnership</td>
</tr>
<tr>
<td>7.</td>
<td>Delegated Power</td>
</tr>
<tr>
<td>8.</td>
<td>Citizen Control</td>
</tr>
</tbody>
</table>

Figure 3.1. Arnstein's Ladder of Citizen Participation
Adapted from Arnstein (1969)

However, while Arnstein's Ladder reflects a somewhat individualistic vision of public participation in that the focus is on the citizen, it can also be linked to organizations involved in governance.

3.2. Conceptualizing Participation: Images of Organizations In Governance

There are many subtle differences between the various organizations involved in the governance of environmental resources. However, I would like to suggest that there are some general organizational images that run through the spectrum. Within the organizations that have a well established role in the governance system, two images are dominant. One is the image of the arcane, authoritarian bureaucracy, with Kafkaesque adherence to rules, roles and hierarchy. On the other, there is the image of the open bureaucracy, responsive to public values in its decisions and openly bargaining with those outside of government. Both flow from a desire for responsible government, but are radically different philosophies for getting there. Dorcey (1986) describes a spectrum of governance styles, in which the ends of the spectrum closely match these two organizational images (Figure 3.2)
Likewise, for those organizations that have become involved in the governance system, but do not have a long-standing and traditional role in that system, there are also a number of images. One image is that of an activist, a special interest group trying to influence political decisions through civil disobedience, legal action and the media. Another image is that of a source of local knowledge. A third is that of a stakeholder, a person or organization with various legitimate forms of local knowledge to bring to the negotiating table, and a representative of a sector of the broader public. A further image of such organizations sees them as public regulators of the government itself, concerned citizens who draw attention to the inconsistencies and incongruities of government policy and regulation. Such a role often extends to organizations as facilitators of bargaining and in drawing the various parties together. In some cases, this may extend to a desire for self-governance.

These images have implications for the kind of public participation processes that are possible. In Figure 3.3 I have placed the various images in parallel with Arnstein's ladder to provide some comparison between the images and their participatory implications. The image of a non-governmental facilitator does not match up well with Arnstein's ladder, which was created with the assumption that participation stems from governmental organizations acting to involve citizens, rather than the other way around. However, on the
spectrum of participation the role of facilitation is clearly more empowering than merely that of a stakeholder, but on the other hand perhaps less than for full self-governance.

Figure 3.3 Participatory Implications of Organizational Images

To some extent the images of non-governmental organizations are reflected in the governmental images -- an authoritative bureaucracy is likely to view outsiders trying to influence the bureaucracy as trouble-making activists. Likewise, a bureaucracy which openly bargains with outside stakeholders implicitly assumes that those stakeholders have a legitimate role in governance, albeit perhaps a limited one. Looking at the problem from the other perspective, NGO's are unlikely to bargain with a governance organization if they view that organization as authoritative in its philosophy. In that case, NGO's will instead develop plans which are more confrontational and adversarial, such as civil disobedience and legal action, in some sense playing the role of "trouble-maker".

These organizational images often provide insight as to how organizations interact. As has been noted in various organizational settings, from rural development administration in Papua New Guinea (Nicholson, 1994) to coal mining regulation in Nova Scotia (Hynes, 1997), the ideal Weberian rational-legal bureaucracy does not exist. Deviance from the official rules of the bureaucracy is almost inevitable when bureaucracies are placed in the real world context of cultural rules, interacting organizations, and economic markets. As will
be described in Chapter 6, such networks played a key role in how the Alouette Water Use Plan evolved.

3.3. Public Participation in Canada: One Step Forward, One Step Back

Arnstein’s ladder provides a touchstone for public participation today (see section 3.1). While her typology may be seen to be promoting complete citizen control, the way in which she applies it to a number of urban planning case studies makes it clear that she also saw the potential for corruption, balkanization and the downloading of responsibility without the requisite resources. She believed that many public participation efforts related to urban renewal, anti-poverty and Model cities in the US were simply either forms of non-participation or tokenism, with only few resulting in any shared decision-making, much less citizen control.

A similar analysis of the governance of natural resources and environmental policy would likely have come to the same kinds of conclusions as Arnstein did in the context of urban planning. The situation in the 1970’s did seem to confirm that some progress was being made in moving farther up Arnstein’s ladder. Governments, under pressure from citizen’s groups, created more opportunities for citizens to be involved in a number of areas. In Canada, Thomas Berger’s inquiry into the social, economic and physical impacts of the Mackenzie pipeline in the Northwest Territories provided one of the first examples of widespread public involvement in environmental policy. Berger’s wide ranging report (1977) gave voice not only to concerns about the project itself, but to challenges from native communities to the traditional development model. An economy based on the traditional exploitation of non-renewable resources was placed alongside the possibility of a mixed economy, involving both traditional land based economic activities as well as some industrial development.

There has been little like it since. Environmental impact assessments have become institutionalized, bureaucratic procedures, established with very tight mandates covering only the “objective” impacts of projects (Tester, 1992). For example, the Canadian Environmental Review Process, the major vehicle for the federal environmental assessment from 1973-92, evolved as an advisory-only process, which consistently avoided the underlying development questions involved in projects under review. Instead, the focus of the process was the development of means for mitigating the negative impacts
of projects, rather than consideration of alternatives to projects or not going ahead at all. Of
the 32 cases it reviewed over its period of existence, only one was rejected, and two others
were withdrawn after the panels finished their reviews (Tester, 1992). In general, the
process followed in environmental impact assessment has been a quasi-judicial one,
leaving the role of the citizen limited to consultation. In the end, the panel decides anyhow,
and given the advisory nature of most panels, the governments can ignore the findings of
such panels. This has occurred various times in recent years. For example, the joint
federal-provincial environmental review of the Alberta-Pacific Forest Industries (Alpac) kraft
pulp mill recommended against construction, but the provincial government allowed the mill
to be built anyhow, albeit using a modified pulping process (Gismondi et al. 1995).

3.3.1. Experimentation With Consensus Based Multi-Stakeholder
Processes
Consensus based “multi-stakeholder” processes developed in the late 1980’s and early
1990s, in part out of frustration with the rigidity of quasi-judicial approaches, as well as the
desire to move farther up the ladder of participation (CORE, 1995; BCRTEE, 1994;
Canadian Round Tables, 1993). These processes involve a committee style format, in
which representatives from various interests within government, industry, NGO’s and
community groups discuss issues and make decisions as a group, often by consensus.
These processes have attempted to be more inclusive than quasi-judicial processes, by
dropping legalistic procedure in favour of less structured discussions in which each person
can address other stakeholders directly, rather than through a lawyer or a formal
commission. The decisions of the group become recommendations to a government
agency, which may or may not be binding.

As discussed in the previous chapter, the concept of a stakeholder, or a person who can
affect or be affected by a decision, was developed in the management literature (e.g.
Freeman (1984)). Rather than using the arguments out of liberal democratic tradition
implicit in Arnstein’s ladder (i.e. that it is a democratic right of citizens to be involved in
decisions that affect them), the stakeholder literature addresses the question from the
standpoint of a manager. It argues that in a pragmatic sense, to involve those who can
affect your decision will improve that decision and lead to more long lasting solutions.
Involving those who are affected by the decision comes from long-sighted version of the
previous argument – that those you affect may become empowered over time and come to
Thus the hope was that multi-stakeholder processes would not only be more democratic, but that they would result in better, more long lasting solutions.

In practice, many of the multistakeholder processes in Canada have gone beyond the bare pragmatics of stakeholder theory, and have developed their own discourses and principles for how political consensus is or should be developed. In general, these involve ways of moving from conflicting positions to more co-operative ones — through “collaboration”, “partnerships”, “joint information gathering” and other techniques aimed at generating agreement. These are discourses working within the existing governance structures — either from bureaucrats and politicians promoting greater public involvement in their programs, or from outside the bureaucracy, from interest groups of various stripes, challenging dysfunctional and often authoritarian bureaucratic organizations.

Those who promote the increased use of multi-stakeholder processes rely on long­standing moral discourses such as “responsible government”, “the public’s right to know”, and “equality” to justify the creation of more open forums for public input on policy and management decisions. However, a second story is told from within the bureaucracy, often using some of the same discourses in an argument for more limited public involvement in decision-making. For example, “responsible government” is used to mean the responsibility of government to make wise decisions on behalf of people of the province. What for the first group are “stakeholders” — legitimate representatives of the people — become “special interest groups” for the second group, loud, vocal proponents of minority positions which drown out the silent majority. At the centre is a broad difference of opinion about how one goes about reaching decisions based on the “common good”. One approach assumes that such conceptions of the good will best be reached through public consultation which is both open, inclusive and to some extent, power sharing, while the other assumes that public consultation processes are on their own unreliable and need to rely on bureaucracies to structure decision-making.

The development of many of the consensus-based approaches to public involvement began after the now widely cited World Commission on Environment and Development

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1 A prime example of the second would be Canada’s First Nations, who at one time were seen as completely marginal, and governments made few efforts to include them in decision making in other than token ways. Now, despite their minority in numbers, First Nations arguably exert considerable power over government decisions, particularly in the natural resources sector.
One of the first developments in Canada in this area was the creation of the National Round Table on the Environment and Economy. This spawned the development of various provincial round tables, such as the British Columbia Round Table on the Environment and the Economy (BCRTEE) (1994). In BC, regional multi-stakeholder processes such as the Commission on Resources and Environment (CORE), and Land Resource Management Plans (LRMPs) followed, as well as community resource boards, local government advisory committees and watershed management partnerships (see (Lotz, 1995; BCRTEE, 1994)).

**Box 3.1. Canadian Round Table Guiding Principles Of Consensus Processes**

- **Purpose Driven** - People need a reason to participate in the process.
- **Inclusive not exclusive** - All parties with a significant interest in the issue should be involved in the consensus process.
- **Voluntary Participation** - The parties who are affected or interested participate voluntarily.
- **Self Design** - The parties design the consensus process.
- **Flexibility** - Flexibility should be designed into the process.
- **Equal Opportunity** - All parties must have equal access to relevant information and the opportunity to participate effectively throughout the process.
- **Respect for Diverse Interests** - Acceptance of the diverse values, interests, and knowledge of the parties involved in the consensus process is essential.
- **Accountability** - The parties are accountable both to their constituencies, and to the process that they have agreed to establish.
- **Time Limits** - Realistic deadlines are necessary throughout the process.
- **Implementation** - Commitment to implementation and effective monitoring are essential part of any agreement.

Many of these processes developed frameworks for how consensus-based decision should be carried out. One of the best examples is the ten principles of the Canadian Round Tables for the Environment (Canadian Round Tables, 1993) (Box 3.1).

Consensus based processes began with high hopes and noble goals, but the experience in BC was mixed. For example, the regional land use planning exercises carried out by CORE proved to be very unproductive at times. In particular, the process used to develop Vancouver Island Land Use Plan (VILUP), the first carried out by CORE, has been cited as particularly problematic. Although CORE did produce a VILUP report which drew on
areas where agreement was reached at the sectoral bargaining table, the table did not reach consensus on a plan after nearly two years of negotiation (CORE, 1994). Some participants felt that the reason the CORE process did not reach agreement was that it was far too unstructured, involving endless negotiation about what “process” was to be followed. According to a report prepared for the Nootka Sound Stability Coalition (a coalition involving two native bands, a forest company and three municipalities), the table was unable to reach consensus “because the participants took seven meetings to draft a Process and Procedure Agreement instead of letting the trained mediators determine the process” (Connor, 1994). The environmental sector was also clearly unhappy, as the West Coast Environmental Law Research Foundation (1993) complained that three-quarters of the original 18 month planning process had been spent discussing process, leaving little time to analyze and come to terms with the complex technical information involved. Even in the VILUP report there appears to be a recognition that it would have been advantageous to deal with substantive issues earlier in the process (CORE, 1994). Thus, ironically, the concern for including the participants in the design of the process resulted in a process which was seen by many as unfair and not constituting meaningful consultation.

Whether it is coincidence or not, the failure of the Vancouver Island CORE process to reach consensus was swiftly followed by the dismantling of many consensus processes. The BCRTEE closed down in 1994, the CORE followed in 1995; some of the community round tables are no longer in existence. A few of the more innovative multi-stakeholder groups continue to exist, such as the Fraser Basin Council (the re-incarnated and more independent version of the Fraser Basin Management Board), which works throughout the entire Fraser Basin to identify environmental problems and ensure that adequate consultation takes place when solutions to such problems are examined (Dorcey, 1997). However, in general, it seems like the pendulum of participation has swung the other way, and a new, more “top-down” approach has returned to the provincial government. Perhaps this is due to scepticism about the value of consensus process; perhaps also to government downsizing which makes money scare and bureaucrats unwilling to take risks.

The evidence of this shift is often elusive. The words used to describe public involvement are often similar -- one still hears a good deal of talk about consulting the “stakeholders”, “collaborating” and “partnerships”. However, a closer examination of the discourse makes it clear that this involvement is on the terms of the bureaucracy, which wants to know what
the public values, but does not want to lose control of public processes. The embarrassment of CORE is the bureaucrat’s nightmare. Their solution is to step away from the discourses of liberal democracy and towards the more conservative discourses, involving the need for “control”, “structure” and “respect for the rule of law”. Of course both have always been present; even more open consensus-based processes assumed that the statutory decision-maker or authority had the ultimate right to decide, regardless of the results of a decision-making process. However, the present trend involves the control of the process from within, in its day to day activities, as well as from without in the role of government as final decision maker.

3.3.2. Reactions To Consensus Based Processes: Stakeholder Consultation

The reaction to consensus based processes has not, at this point, resulted in moving back to quasi-judicial models of public involvement. This model is still commonly used for public participation in some contexts, such as environmental impact assessment, but the benefits of multi-stakeholder involvement are also recognized. For example, it is felt that multi-stakeholder processes require participants to, in a sense, “buy into” an agreement, resulting in decisions that should be longer lasting and more robust.

Approaches emerging from economics and game theory, such as “decision analysis” are proposed by some as a more viable solution to involving the public than loose and open ended consensus based process. Decision analysis developed in the late 1960’s as an approach to quantitatively and systematically making decisions based on multiple objectives, under conditions of uncertainty (Raiffa, 1968). A plethora of books and articles have been written on the subject since that time (e.g. (Raiffa, 1968; Brown et al. 1974; Shlaifer, 1969), see (Keeney, 1982) for additional references), and the approach has been applied to various business, medical, environmental and other public policy decisions.

In a parallel development, researchers in management studies and applied psychology have studied the role of structure in how groups make decisions (Van de Ven and Delbecq, 1971; Stumpf et al. 1979; Frankel, 1987), mainly in the context of the work environment. For example, Van de Ven and Delbecq (1971) developed a structured process, which they call a “nominal group format”, in which individuals work in the presence of each other, but do not verbally interact. Instead, the individual that is leading the group asks each person to answer questions individually, then in a round-robin fashion the ideas are written up on a
flip chart. They contrast this approach with an interacting group format in which all communication takes place with minimal structuring. Experimental comparison of the two approaches has indicated that the nominal approach results in the production of a greater number of ideas (Van de Ven and Delbecq, 1971), and more effective decisions (based on criteria of quality, acceptability and originality) (Stumpf et al. 1979). On the other hand, in situations where there is a high potential for conflict and a lower need for innovation, interacting groups tend to produce more effective decisions (Stumpf et al. 1979).

As multi-stakeholder processes have developed to deal with thorny management questions, structured decision-making approaches which were developed in the management context have been adapted to this context (Keeney and Raiffa, 1976; Keeney, 1988; Maguire and Boiney, 1994; Gregory and Keeney, 1994; McDaniels et al. 1998). These share much in common with consensus approaches, but also differ markedly in some areas. I use Ralph Keeney's term "value focussed" to generally describe those approaches to public involvement that combine decision theory and multi-stakeholder process.

In general, the elements of multi-stakeholder consensus approaches that are retained by value focussed approaches are those which are part of the planning and management theme (e.g. purpose driven, accountability, time limits and implementation), or are commonly accepted themes even in the quasi-judicial approaches to public involvement (voluntary participation, inclusivity, respect for diverse interests). On the other hand, there is a complete rejection of process "self-design" in favour of predetermined structure. This raises some questions about the extent to which value focussed processes can meet the criteria of flexibility and equal opportunity. The comparison is summarized below in Box 3.2.
<table>
<thead>
<tr>
<th>Consensus Processes</th>
<th>Value Focussed Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Purpose Driven</td>
<td>Yes</td>
</tr>
<tr>
<td>2. Inclusive</td>
<td>Yes</td>
</tr>
<tr>
<td>3. Voluntary</td>
<td>Yes</td>
</tr>
<tr>
<td>Participation</td>
<td></td>
</tr>
<tr>
<td>4. Self Design</td>
<td>No, this results in endless negotiations about “process”, and in poor decisions being made.</td>
</tr>
<tr>
<td>5. Flexibility</td>
<td>Maybe, but the steps of the process must be followed.</td>
</tr>
<tr>
<td>6. Equal Opportunity</td>
<td>Yes, both equal opportunity to participate and equal access to information are important, but access to the design of the process (see 4 above) and information generation must be controlled.</td>
</tr>
<tr>
<td>7. Respect for</td>
<td>Yes</td>
</tr>
<tr>
<td>Diverse Interests</td>
<td></td>
</tr>
<tr>
<td>8. Accountability</td>
<td>Yes</td>
</tr>
<tr>
<td>9. Time Limits</td>
<td>Yes</td>
</tr>
<tr>
<td>10. Implementation</td>
<td>Yes</td>
</tr>
</tbody>
</table>

This quick and dirty comparison suggests that there are a few key areas in which these two approaches differ. The first is in the area of public involvement in process design, for which the two approaches take opposite tactics. Given that this was seen as a weakness in the CORE processes and others which were supposed to be designed by the participants, this seems to be an area which requires more thought. Although the question could be argued simply on the principle that democratic processes should be as open as possible, convincing bureaucrats and managers requires arguments that appeal to their own particular sensibilities, such as organizational and policy mandates, cost-effectiveness, and interaction style.

The second area of difference between the two approaches is on the question of how technical information is brought into multi-stakeholder processes. The Canadian Roundtable principles say very little about how technical information is to be used, beyond the need for equal access to relevant information. On the other hand, the value-focussed approach is very much concerned with bringing information together with the values of participants, although it tends to favour explicit comparisons of expert-based analyses. Neither consensus based nor value focussed approaches dig very deeply into the question of what makes scientific knowledge credible, but instead see it as more-or-
less objective knowledge about the world. As the previous chapter emphasised, scientific knowledge, like any kind of knowledge, is contingent on previous assumptions. It follows that if different kinds of knowledge are being integrated together, difficulties may be encountered when those differing assumptions come into conflict.

Finally, it seems useful to reconsider the central figure in the debate, the third party facilitator or mediator. Neither "consensus based" nor "value focussed" approaches speak to this question very directly. Thus, I take a quick look at the mediation literature, as it is written from the perspective of this third party.

3.4. The Role of the Third Party: Mediation Approaches

Forms of conflict resolution in which a third party helps disputants resolve their conflicts and come to their own decisions have probably been practised since the existence of three or more people on earth. (Folberg and Taylor, 1984)

Mediation, or the involvement of a third party in conflict resolution, has a long history in various cultural traditions. There is strong thread of mediation in the New Testament tradition, evident in Paul's suggestion that disputes among Christians should be settled by airing grievances in front of a third person selected from within the Christian community, rather than bringing the disputes to a court (1 Corinthians 6:1-4). This tradition has carried on into many of the more communal Christian traditions (or at least was in the recent past), such as Mennonite and Quaker communities where this practice is the norm for settling disputes within the community. Likewise, mediation was the principle method of resolving disputes in ancient China, where the Confucian view that moral persuasion rather than sovereign coercion was the best way of resolving disputes (Folberg and Taylor, 1984).²

In the present day North American context, mediation is often associated with the bargaining process carried out between labour and business organizations. It is seen as an alternative to the judicial system for family and other interpersonal disputes, and increasingly as an alternative to all forms of litigation. A number of other areas are also becoming part of the arena, including disputes over environment and resource management, neighbourhood conflicts and disputes over social policy. In many ways, environmental and social conflicts are more like family disputes than labour conflicts, in that

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² See (Folberg and Taylor, 1984) for further examples of mediation in other cultural traditions.
there are many human relations to consider, many viewpoints from which the conflict can be examined, and less distinct boundaries on who should be involved.

I would argue that many forms of public involvement in environmental management are examples of mediated conflict resolution, whether or not that language is explicitly used. Indeed, it could be argued that even “vision based” public involvement programs which are designed to direct public policy in an area where no apparent conflict exists are often attempts to avoid future conflict. The involvement of third parties in environmental disputes can be envisioned as running along a spectrum from complete “hands-off” facilitation (in which the parties themselves largely direct the process and the third party simply follows the desires of the group), to processes where the third party provides some structure to the process in order to establish order, but still largely responds to the wishes of the group, to an arbitration type process, which may involve some of the elements of group processes, but in which the third party acts as the decision maker for the group. At the ends of the spectrum the diversity of approaches vanishes to a single point, an ideal never realized in practice -- either “pure” facilitation in which the role of the third party is reduced to that of a mirror, or “pure” arbitration in which the various parties make their case before a judge, who then makes his or her independent and authoritative decision. In between, a spectrum of mediation approaches are available which are either more explicitly empowering, or alternatively, concerned with control. Figure 3.4 illustrates this trapezoidal shaped spectrum.
The central "mediation" region of the spectrum in Figure 3.4 represents disputes in which the participants would likely not reach an agreement without some kind of third party intervention. As suggested by the those who planned and organized the Alouette Stakeholder Committee (McDaniels et al. 1998), such disputes will often not be resolved by the participants in a process that they design themselves. The distance and mistrust between the participants results in further disagreement and mistrust in trying to decide how to move forward on the issue. This is not a new insight from a mediation perspective -- the whole point of mediation is to get people to talk who would have difficulty having a constructive discussion on their own.

McDaniels et al. suggest that this problem can be resolved by adding structure to the debate, in particular moving towards decision-analysis based approaches. This is an entirely valid approach; however, it is not the only approach available. There are other mediation approaches, such as the "transformative approach" (Folger and Bush, 1996), which is very minimalistic in the role it prescribes for the third party, focusing attention on the empowerment of participants and recognition of their problems. The goal of mediation is thus transformation, or the creation of a world in which "people are not just better off but
better: more human and more humane" (Folger and Bush, 1996). Finally, there are approaches that fall on the spectrum between the two, which empower participants and are concerned with the moral dimensions of mediation, but on the other hand recognize that disputants probably want to reach an agreement as well.

"Decision-analysis" approaches involve structuring decision-making along the lines of multi-attribute utility theory. The emphasis here is on creating alternatives, deciding on what information is required to characterize the impacts of those alternatives, and then comparing them, either formally through utility functions or informally through individual judgements. "Value-focussed thinking" is a newer variant on traditional decision analysis, with one of the major changes being a focus on creating alternatives. They are often couched in the terms of "making better decisions", and avoiding the pitfalls of group decision-making, such as the tendency of some people to defer to others, or for cantankerous individuals to dominate the discussion, or for the rapid movement towards a single position ("group think") to occur (McDaniels et al. 1998).

Although this structuring can be seen as a way of making more rational decisions, it can also be seen as concerned with control of group actions, information and judgements. Certainly there are others within the mediation field itself who are also concerned with creating more "rational" and "efficient" processes in which the mediator directs the process towards their own ideas of what a fair agreement is, and would likely support decision-analysis approaches (Bazerman and Neale, 1992). It is interesting to note, however, that "The mediator's exercise of power goes largely unnoticed by the bargainer" (Silbey and Merry, 1986). The direct intervention by a mediator is often seen to be merely part of his or her job. Thus the spectrum between more controlled versions of mediation and empowering approaches may not be obvious to the disputing parties, for the exercise of power by the mediator is not as a direct decision maker but occurs in more subtle ways. Michel Foucault's definition of power is useful here: it is not something that can be possessed, but something that flows and emerges through social interaction (Foucault, 1982). Thus, for example, the mediator may exert power by seeking to influence what issues are addressed in the negotiation process, or to exclude issues that are harder to tackle in the problem-solving context, such as incommensurable differences in morality, ethics and justice (Pinzón, 1996).
The "transformative approach" to mediation as outlined by Folger and Bush (1994; 1996) is built around the central idea that the mediator's role is to empower the parties involved and recognize their goals, options and preferences. The mediator is to be consciously non-judgemental about the parties views and decisions. Like facilitation, which is described as simply aiding the discussion rather than directing it, the transformative approach takes an optimistic view of the ability of people to resolve conflicts if they are able to communicate their ideas. A further characteristic of this technique is that the goal of mediation is the transformation of the participants in terms of moral growth, in short, "changing not just situations but people themselves" (Bush, 1994). They see mediation approaches which are problem centred and focusing on the satisfaction of the needs of the participants as only superficially resolving conflict. Problem-solving mediation, they claim, "leaves both parties unsatisfied or satisfies one at the expense of the other" (Bush, 1994).

Critics of the transformative approach have compared it to therapy in that it implies that mediation can or should not occur where people simply want to come to some sort of agreement without developing a deep emotional connection (McKinney, 1997). They even suggest that transformative mediation is not empowering because it requires participants to develop a compassion for others -- something the parties may not even be interested in. Bush and Folger claim that problem-solving approaches lead the mediator to exercise control over the process when the discussion is heading towards territory outside his or her definition of a wise solution. However, such mediator control does not seem to be unique to the problem-solving approach, for the transformative approach can be seen as just as heavy handed for its assumptions about what the process goals should be. Indeed, requiring the transformation of the participants seems more intrusive and less respectful of the autonomy of disputing parties than trying to find a solution that is mutually agreeable. Empowerment could also mean the ability to define one's problems for oneself. Thus, it should be possible to mediate disputes in an equally empowering manner using a problem solving approach. Mutual recognition is important, such as the recognition that other participants have a valid point of view and the right to sit at the table. However, it need not be a primary goal of mediation.

On the other hand, there is an undercurrent in the mediation literature of subtle ways in which the mediator does or should influence the process. It is pointed out that empowering the participants and improving communication between participants may not be sufficient to
resolve conflicts. While effective communication is indeed key to good mediation, even if parties are communicating perfectly, they may not like what they hear. Thus mediation is a "surreptitiously quasi-coercive process in which parties are led or manipulated into redesigning their perceptions so that they can arrive at a common definition of the problem and its solution" (Tidwell, 1994). Robert Benjamin (1995) has suggested that the role model for the mediator is that of a trickster, who attempts to transform the context of the dispute in order to get the parties thinking about the way in which they are each framing the debate. This involves the creation of dissonance by casting doubt over the complete justice or rationality of either side, reframing the debate in order to open up other alternatives, and the use of "paradoxical techniques" for addressing right-wrong dualisms. The latter is based on the assumption that if one is convinced of the rightness of one's position, no amount of logic will loosen his or her position. Even the most gentle suggestion that the other side may be right is met with opposition. Rather, the party convinced of the justness of its position is encouraged to follow that position to conclusion. Benjamin gives the example of how a frustrated judge hearing a dispute over property may threaten to "sell everything" if the parties can't come to an agreement, a device, like King Solomon's threat to cut the infant in half, designed to clarify the dispute. Such devices serve to draw the boundaries of what an acceptable solution is, and draw the parties into the debate, allowing them to react to the extreme cases and draw their own boundaries on the conflict.

This may be seen as a slippery ethical slope, in which the mediator, no longer concerned with truth, deceives those he or she is supposed to be working for and manipulates their actions. That is taking the concept too far. What is really meant is that instead of the mediator treating the conflict as a "mistake" to which "truth" needs to be applied in order to resolve it, the mediator aims to construct a solution which is acceptable to all parties. There is no single right solution. In this sense, resolution of the conflict involves finding an agreement that can be woven into the different constructions of reality around the table; in part, this may require the parties to shift the way they view the problem. This shift is not accomplished simply by pushing, as this will result in further entrenchment. Rather it is accomplished by shifting the debate just enough for the disputing parties to recognize what their interests are, what common ground can be found, and to recognize, ultimately, the importance of the connections that exist between them. This is similar to the process of getting past "positions" to discover where the "interests" of the parties lie, which is central to the principals in Fisher and Ury's popular book on negotiation (1981). The difference, if
there is one, is one of emphasis. Fisher and Ury describe the process as one of discovering what the interests of the other party are. To some extent, I think that those interests are constructed in the mediation/negotiation process. That is, going into the conflict resolution process, people may have specific ideas about how certain areas of the problem should be solved, but may have very vague ideas about other areas. In areas where people do not have a very firm idea of what their interests are, the process aids in the construction of those interests.

Finally, there are limitations on how much a debate can be reframed, in that the reframing must still fall within some notion of acceptability. That is, while it may be possible to shift the worldview of parties ever so slightly, it is also possible to reframe an issue in such a way that it loses all persuasive power. In other words, reframing only works in as far as it is accepted by all parties. Unlike transformation, which may require enormous changes in the characters of the people involved, reframing has humbler goals, simply the development of mutual understanding around a particular problem.

3.5. Knowledge And Information: The Missing Link

The second way in which criteria for public participation fall short is the way in which they deal with knowledge and information. Beyond the criteria of equal access to relevant information, the principles of the Canadian Round Tables say very little about information. Value focused approaches have much to say about the use of expert information, but at times make fairly naive assumptions about such knowledge.

As I suggested in the previous chapter, it is often difficult to divorce environmental conflicts from an underlying scientific discourse. This does not mean that environmental conflicts are necessarily scientific, or even primarily about questions of science. Instead, it is a common assumption that scientific knowledge contributes to the resolution of those conflicts. Although it is possible to challenge that assumption, I take the somewhat intermediate position that scientific knowledge and scientists as people have much to contribute to our understanding of impacts of human activity on the environment. However, their knowledge is not authoritative, it is open to question; it is not comprehensive and holistic, but rather reductionist and open-ended. In short, scientific or technical knowledge is important, but it is only one resource for resolving environmental conflicts.
Brian Wynne's (1995) "Lay Criteria for the Judgement of Science" described in the previous chapter provide a starting point for bringing the topic of science into the public participation criteria. In order to make these criteria more useful to the case study at hand, I have reframed the criteria in evaluative terms (Box 3.3). I have also changed the first criteria to reflect the process of science rather than its outcomes, by asking if the objectives and methods used are seen as appropriate within the scientific and lay communities. I made this choice as I read through my interview transcripts, as it was clear that many people commented on the appropriateness of the methods used in the technical study, rather than their results per se.³

Scientific information has a role in evolution of organizations as well, under what Innes (1998) calls communicative planning, in which information gradually becomes imbedded into the understandings the people involved and changes the way they see the world. Information thus has a role beyond explicitly weighing alternatives and making choices. For example, the process of developing and publicly discussing detailed environmental impact assessments for major development proposals in California had a number of organizational impacts, such as:

³ This does not imply that using the "right" methods will result in the resolution of conflicts. As noted in the previous chapter under "mandated science", assuming that disputes between experts will disappear if the right methods are chosen or if more study is done is generally a mistake. However, in order for information gathering or public participation to be credible, the methods used must at least be seen as credible.
1. **Increasing the capacity of the bureaucracy to find and interpret information.** Agencies hired and trained environmental experts in order to develop information.

2. **Creating new advocates.** These agency staff became advocates for environmentally responsible policies within their agencies as they became immersed in environmental research and analysis.

3. **Empowering existing advocacy groups.** Public interest organizations became more visible, as they gained credibility by reviewing the reports. Such groups became powerful because they would sue if they could show that environmental reports were inaccurate or methodologically inadequate.

4. **Changing the way institutions think.** The effort and political attention paid to environmental assessment began to change the way "the institutions think" (Douglas, 1986). It became normal for participants to consider the environmental dimensions of projects.

Adapted from (Innes, 1998).

The government agencies, in this case, did not always decide in favour of pro-environmental perspectives because of their altered institutional outlook. However, their change in outlook did make it easier for environmental issues to become a part of decisions. The greatest effect of information was not in the final stages of decision-making, but in the preliminary stages. Because environmental impacts were part of the accepted discourse of development, those with environmental concerns were able to influence developers at the beginning stages of the process, when developers were more amenable to making changes to their proposals to avoid public controversy and lengthy delays.

### 3.6. Synthesis -- Public Participation Criteria

Bringing the criteria for effective public science together with the principles of consensus processes from Canadian Round Tables reveals a number of parallels, as well as several key differences. First, the context within which Wynne's criteria were developed -- a relatively disempowered farming community faced with the technocratic decision-making of scientists -- is reflected in the criteria. The criteria focus on ways in which the disempowered relate to scientists, and only address the question of how the disempowered can be empowered in a limited way. The public participation approach of the Canadian Round Table provides some guidance in terms of suggesting a possible normative framework for creating a more constructive dialogue between the two groups.
Given the public participation context of the Alouette Water Use Plan (AWUP) process, it makes sense to stick with the Canadian Round Table criteria as a backbone. Although these criteria outline a problem-solving approach as opposed to a transformative one, they do include many criteria which address the human and relational aspects of conflict resolution. The two sets of criteria are fully integrated in Figure 3.5. The backbone criteria are listed in the centre, and their implications in terms of participation and knowledge are given in the side boxes.

<table>
<thead>
<tr>
<th>PARTICIPATION</th>
<th>KNOWLEDGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear reason to participate.</td>
<td>Clear research objectives.</td>
</tr>
<tr>
<td>Form of public involvement seen as appropriate.</td>
<td>Objectives and methods accepted in the scientific and lay communities.</td>
</tr>
<tr>
<td>Inclusiveness, Equal opportunity to participate and Process Self-Design.</td>
<td>Clear communication of information, Openness to other kinds of knowledge.</td>
</tr>
<tr>
<td>Credibility of “third party”.</td>
<td>Credibility of technical institutions.</td>
</tr>
<tr>
<td>Accountability of participants to process, constituencies.</td>
<td>Accountability of technical studies to process.</td>
</tr>
<tr>
<td>Process timeline takes information collection into account.</td>
<td>Research timeline takes public participation into account.</td>
</tr>
<tr>
<td>Agreement on policy.</td>
<td>Agreement on research results.</td>
</tr>
<tr>
<td>Commitment to implementation.</td>
<td>Effective ongoing learning and monitoring.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CLARITY OF PURPOSE</th>
<th>APPROPRIATENESS OF METHODS</th>
<th>OPENNESS</th>
<th>INSTITUTIONAL CREDIBILITY</th>
<th>ACCOUNTABILITY</th>
<th>TIME LIMITS</th>
<th>CONSENSUS DECISION MAKING</th>
<th>IMPLEMENTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear research objectives.</td>
<td>Objectives and methods accepted in the scientific and lay communities.</td>
<td>Clear communication of information, Openness to other kinds of knowledge.</td>
<td>Credibility of technical institutions.</td>
<td>Accountability of technical studies to process.</td>
<td>Research timeline takes public participation into account.</td>
<td>Agreement on research results.</td>
<td>Effective ongoing learning and monitoring.</td>
</tr>
</tbody>
</table>

Figure 3.5 Criteria for Public Participation: Participation and Knowledge
I have dropped the Canadian Round Table criteria of voluntary participation, given that it was not a contentious issue in the AWUP process, as far as I can tell. Additionally, I have regrouped some criteria in order to incorporate both their process and knowledge dimensions. These include equal opportunity, inclusiveness and self-design, which I have generalized to openness. I also dropped Brian Wynne's criteria of reflectiveness, because it seemed to be part of the openness of technical information, and I had little data that I could specifically place under that heading.

The Canadian Round Table criteria do not address how institutional credibility affects the way in which people judge knowledge claims, a key finding of Brian Wynne's work. The credibility of the third party fits in nicely here, as these individuals are often the public faces of the lead organization. I added another criteria, the appropriateness of methods used to develop knowledge and carry out public participation, when it became clear from the interview data that many participants discussed the methodologies themselves. Finally, I thought it important that the consensus decision-making criteria implicit in the Canadian Round Table principles be made explicit.
4. WATER RESOURCES LEGISLATION AND POLICY

The world of water resources policy in Canada is a complex one, which rises and falls with the seasons of political interest and discontent among the federal, provincial, municipal and, more than ever, aboriginal governments. There are a tangle of rights, legislation, policies and guidelines which affect water resources, either intentionally or through unpredictable interactions, and provide the legal ground on which the water resources management is supposed to stand.

4.1. LEGISLATION

4.1.1. Provincial Rights To Manage Water

On the face of it, the question of who controls water seems to be simple one. Although there is a certain presumption in supposing that human beings can “control” water, and indeed floods and droughts remind us of our inability to control nature, the Canadian Constitution accords the provinces “ownership” of water bodies. Under common law, which was the legal regime with respect to water in Britain and British North America until the mid 19th century, land owners had rights to use water from water bodies riparian to their lands. This was balanced by the duty to allow water to pass downstream undiminished in its quality and quantity except for what was considered normal and ordinary use (Thompson, 1987). These riparian rights have been significantly altered in the western United States, as well as in Canada’s western provinces and northern territories. The common law rights of riparian owners have largely been replaced, and instead water has been given a special status as a common property resource; that is, a resource which is controlled by the province. For example, in British Columbia, section 2(1) of the Water Act more or less removes all riparian rights to water by stating that water is owned by the Crown and may be used only by licence from the government (BC, 1997a) Likewise, the beds of all streams, rivers and lakes are deemed to belong to the province, although it reserves the right to grant the bed to a private individual.

Licences can only be issued for “beneficial uses” of water, which include irrigation, human consumption, mining, industrial uses and hydroelectric generation of power. In fact, much of the legislation related to water in B.C. was historically driven by the mining industry, both because of the failure of the riparian rights system to ensure that water was apportioned
fairly among different riparian land owners, and because the placer mine operators wanted
to be able to use water without having to own riparian land (Scott, 1991). Allocation
between users is based on the date of the water licence, which gives users with the earliest
dates the right to obtain water up to their licensed amounts, while those with later dates
may be left with none.

At one time, water licences were not granted for the conservation of the fisheries and
ecological values of water because these uses were not considered “beneficial”. This has
changed somewhat, although the legislation is still ambiguous. There is now a category of
licences for “conservation purposes”, defined in section 1 of the Water Act as “... the use
and storage of water or the construction of works in and about streams for the purpose of
conserving fish or wildlife”. However, a number of factors make conservation licences
somewhat less useful than it may first appear. First of all, licences issued for conservation
are often taken out after a water body has become or is close to becoming fully subscribed
(fully licensed). Thus the pre-existing licences for extracting water have priority, given that
they were issued prior to the conservation licence. Secondly, even when both conservation
licences and others have the same priority date, the order of precedence puts conservation
at the bottom of the list, higher only than conveying and land improvement purposes1.
Finally, conservation licences have most often been issued to provide water for fisheries
enhancement projects, such as hatcheries and fish spawning channels, rather than for
instream flows themselves.

There are a few exceptional cases where water licences have been issued for larger
amounts of water than required for maintaining fisheries enhancement projects. For
example, a licence was issued to the Department of Fisheries and Oceans (DFO) for 57
m$^3$/s in the Nechako River$^2$, with the purpose of the licence to ensure minimum flows on the

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1 The priority of water uses is given in the Water Act, s. 15(2):

The respective rights exercisable under 2 licences taking precedence from the same date have
precedence in law according to the ranking of the respective purposes for which water is
authorized to be used under the licences respectively, and the ranking of the several purposes
for which water may be used under licences are, from highest rank to lowest rank: domestic,
waterworks, mineral trading, irrigation, mining, industrial, power, hydraulicking, storage,
conservation, conveying and land improvement purposes. (BC, 1997a)

2 Water Licence C067591, held by the Department of Fisheries and Oceans, for 2000 cubic feet per
second (cfs) (57 m$^3$/s), with a priority date 1949/08/03 (BCMELP, 1998)
river, whose waters are partially diverted by Alcan's Kemano hydroelectric project. Although the licence was issued under the 1987 Settlement Agreement between the federal and provincial governments and Alcan (in Appendix 2 of (BCUC, 1994)), it was given a priority date of August 3, 1949, the same date as on Alcan's licence to divert water for hydroelectricity. However, because of the priority list in the Water Act, Alcan's hydropower licence has precedence over the conservation licence. Of course, the conservation licence has priority over other water licences which have been issued since 1949, but these are mainly small licences for domestic supply, irrigation and industry which have a relatively minor impact on instream flows relative to the hydropower licences.

A second mechanism for protecting fisheries resources has been to include fisheries clauses into large water licences, particularly for hydroelectric power producers. This did not become common practice until the 1950's, and even many licences issued in the 1950's have vague or incomplete fisheries clauses. For example, a water licence was issued to the BC Electric Company (now part of BC Hydro) on December 15, 1954 to divert water from the Cheakamus River, near Squamish, with a clause stating that

the Comptroller of Water Rights shall, as a condition of this licence, issue an order on or before the 1st day of June 1956, setting forth the quantity and time of water releases ... for the purposes of maintaining a flow of water in the Cheakamus River for fish propagation. (quoted in (Ward and Yassien, 1996a)).

However, the conditions of this clause were never carried through. Instead, flows on the Cheakamus are maintained at rates specified in the B.C. Hydro Station Operating Orders. The "non-power" flows at this site are thus determined by BC Hydro's own policy, and are not public policy decisions.

Other hydroelectric projects, such as the Puntledge River Diversion on Vancouver Island are governed by operating orders from the regional water manager. These include the specification of seasonally adjusted minimum flows in the rivers downstream of the dam.

Although water is legally a common property resource, because of the system used to administer its use, water licences are virtually a form of property right, rather than licence to

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3 Water Licence C019847, held by the Alcan Aluminium Ltd., for 9500 cfs (269 m³/s), with a priority date 1949/08/03 (BCMELP, 1998)

4 Fisheries flows include a constant release of at least 1.7 m³/s, plus the discharge from a small turbine which provides power for the dam site, when it is in service (Ward and Yassien, 1996a).
use. This is due to the fact that licences are generally granted for an indefinite period of time, and that the reasons for reviewing water licences are very narrow. For example, water licences can only be revoked or altered if the licencee fails to:

- Make "beneficial use" of the water as described in the licence for 3 years;
- Construct the works specified in the licence in the required time;
- Pay the rentals due to the government for 3 years, or pay the water bailiff's fees within 6 months;
- Comply with the Water Act or regulations, or comply with the terms and conditions of the water licence;
- Comply with an order of the comptroller or a regional water manager or an engineer;

Or if the applicant

- Makes a material misstatement or misrepresentation when applying for a licence; or,
- Loses title to the land or mine for which the licence was given.

(Summarized from Water Act (BC, 1997a))

In an ideal world in which only the province and the water licence holder had rights to water, this system might work. However, a number of other government and non-government organizations also have rights to be involved in water resource management, which makes water management much more complex.

**4.1.2. Federal Rights To Manage Water**

Although the province has legal title to water, the federal government has jurisdiction over fish that may be affected by changes in instream conditions, as well as "fish habitat", which is actually a combination of the water, river beds and riparian land that the province has jurisdiction over. The major piece of legislation in this case is the *Fisheries Act* (1970), which prohibits the dumping of deleterious substances into fish bearing streams or damaging fish habitat. Is this not under the province's responsibility as owner of the water? Court decisions after the enactment of the Fisheries Act suggest that the Act is valid only to the extent that its regulation of water quantity or quality is linked to protection of a fishery (Thompson, 1987). In order to carry out the Act, the Department of Fisheries and Oceans

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5 This arrangement has been modified in BC, where the provincial government has been delegated jurisdiction over freshwater fish species.
developed a policy of "no net loss" of habitat, which is intended to protect fish habitat from development, or to ensure that the habitat is replaced or repaired if it is damaged. This policy has been somewhat problematic, as it is unclear whether many of the measures used to protect fish in the past, such as hatcheries, protect the integrity of fish stocks sufficiently. While this legislation is powerful, in many cases it is difficult to establish what water quantity and quality are needed to protect fish habitat.

The federal government also has jurisdiction over navigation, under which it passed the *Navigable Waters Protection Act* (1970). This is a potentially powerful piece of legislation, allowing for the removal of any work (dam, bridge, boom, etc.) which interferes with navigation without federal approval.

Finally the federal government also has powers to address interprovincial and international water issues, although these powers remain controversial. International water issues seem somewhat more straightforward, in that the federal government clearly has the authority to represent Canadian interests in international issues. There are institutions such as the International Joint Commission, created under the 1909 Boundary Waters Treaty between the U.S. and Canada, to resolve disputes regarding boundary waters. Interprovincial issues on the other hand are a little more contentious, falling under the residual powers given the federal government by the Constitution "to make laws for the peace, order and good government of Canada" -- what lawyers refer to as POGG. The *Canada Water Act* of 1970 was the federal government's most ambitious attempt to assert its jurisdiction over trans-provincial boundary disputes. This Act was used to support co-operative federal/provincial efforts in water basin planning rather than to test the bounds of federal jurisdiction. The implementation of joint federal-provincial water basin planning is discussed further in section 4.2.1.

4.1.3. Water And Aboriginal Rights

One of the changes in natural resource management in the last thirty years has been increasing recognition of aboriginal rights, which predate all other claims to ownership of resources. Detailed descriptions of the evolution of native law and its impact on the capacity of First Nations to manage water have been carried out elsewhere and are not reproduced here (Thompson, 1987; Thompson, 1991; Boudreau, 1997). However, a brief
overview of the linkages between water and aboriginal rights is necessary to understand multi-stakeholder processes involving First Nations.

Aboriginal rights are legally grounded in the rules that colonising Western European nations developed for resolving their competing claims to sovereignty over the "New World". In British North America, the Royal Proclamation of 1763 provided that

> the several Nations or Tribes of Indians with whom we are connected, and who live under our protection, should not be molested or disturbed in the possession of such parts of our dominions and territories as, not having been ceded to or purchases by us are reserved to them, or any of them, as their hunting grounds . . . (cited in (Thompson, 1991))

However, for many years it was unclear if the courts would recognise aboriginal rights in a broader sense, as title to land deriving directly from aboriginal habitation. Nearly two centuries passed before the landmark 1973 Calder case, in which a majority of the Supreme Court agreed that aboriginal rights did exist, although the judges were split evenly on the question of whether aboriginal rights had been extinguished in the case at hand, the land claims of the Nisga'a people (Thompson, 1991). As well, they gave no explicit definition of aboriginal rights.

The response of the British Columbia government to the Calder decision was to emphasise that the court had not decided in favour of the Nisga'a. The Provincial perception shifted from complete denial of aboriginal rights, to the assumption that those rights had been abolished. The Canadian government established a policy of negotiating outstanding claims, including those of the Nisga'a. Given the Canadian government's limited control over provincial resources such as land and water, the treaty process moved very slowly.

The concept of aboriginal rights was recognised and given a new role by the Constitution Act of 1982 which states in section 35(1) that

> The existing aboriginal and treaty rights of the aboriginal people of Canada are hereby recognized and affirmed.

A number of judicial decisions shifted the Provincial position towards negotiation. In Guerin v. Regina [1984], the Supreme Court of Canada ruled that the federal Crown had breached its fiduciary responsibility when it leased Musqueam reserve land to a golf club in the late 1950's (Boudreau, 1997). The ruling described First Nations' interests in their lands as a "pre-existing legal right not created by the Royal Proclamation . . . the Indian Act . . . or any
other executive order or legislative provision". In 1985, the BC Court of Appeal decided in favour of the Nuu-chah-nulth, who were blocking the access of the forestry company MacMillan Bloedel to Meares Island. The Nuu-chah-nulth sought a court injunction to halt logging until their claim to aboriginal title of the island was resolved. Further, in the case of Pasco v. Canadian National Railways [1986], First Nations applied to the Supreme Court of British Columbia for an interim injunction to halt the CNR’s proposed twin tracking project through the Thompson River (Thompson, 1991). The project would have placed rock on the riverside near the reserve lands of the Oregon Jack Creek Indian Band, which the Band claimed would interfere with their fishing rights. These judgements contributed to the province’s decision to negotiate land claims in 1990 through the British Columbia Treaty Commission.

One case which can be seen as directly linking water and aboriginal rights occurred not long after the Calder decision. The James Bay Cree and Inuit went to court to seek an injunction halting the construction of the massive James Bay hydroelectric project in Northern Quebec. Although its decision was overturned, the court initially found in favour of the Cree and Inuit, citing the possible infringement of aboriginal rights (Barton, 1987). The case was eventually settled out of court, resulting in the James Bay and Northern Quebec Agreement of 1975. This agreement allowed the development to proceed while providing exclusive access to a proportion of the land for hunting and fishing, monetary compensation for damages, and a say in the management of resources through government-native co-management bodies (Feit, 1982).

Since the beginning of the British Columbia treaty negotiation process, a number of court decisions have had an impact on the definition of aboriginal rights. The decision in R. v. Sparrow [1990] broadened the definition of aboriginal rights, and ruled that aboriginal and treaty rights can evolve over time and must be interpreted in a generous and liberal manner. In Sparrow, the Supreme Court set aside the lower court conviction of Ronald Sparrow, charged for using a drift net longer than permitted under the Musqueam Indian Band’s food fishing licence (Usher, 1991). The court accepted his argument that he was exercising his aboriginal right to fish guaranteed by the Canadian constitution. Thus the onus was placed on the Canadian government to justify the use of regulatory measures such as net size to restrict the aboriginal fishery.
This liberal interpretation of aboriginal rights was narrowed somewhat in three cases decided in 1996 (R. v. Van der Peet, R. v. Gladstone, and R. v. N.T.C. Smokehouse). They all raised the question of whether aboriginal rights extended to the right to sell fish. The Van der Peet case introduced a test for the identification and definition of an aboriginal right:

\[
\text{in order to be an aboriginal right an activity must be an element of a practice, custom or tradition integral to the distinctive culture of the aboriginal group claiming the right.}^6
\]

The theme underlying the Van der Peet decision is that aboriginal rights apply to specific practices and customs determined on a case-by-case basis, not in a general or universal manner. Further, in contrast to the definition of aboriginal rights described in Sparrow which allows for evolution in those rights over time, the test described in Van der Peet emphasises the need for continuity in practices, customs and traditions to those that existed prior to contact (Bell, 1998).

The most recent decision, a Supreme Court ruling in the Delgamuukw v. British Columbia case in 1997, appears to have signalled a return to a more liberal interpretation of aboriginal rights. The case began in 1984 when the Wet’suwet’en and Gitksan hereditary chiefs asked the B.C. Supreme Court to recognize their ownership of approximately 58 000 km$^2$ of land in north-western British Columbia. First Nations peoples and governments and sympathetic non-natives reacted with anger and frustration to the initial decision in 1991 by Chief Justice Alan McEachern, who rejected native oral histories as evidence and ruled that the Crown had extinguished aboriginal rights at the time of Confederation. The angry response was not just to Justice McEachern’s decision, but to his attitude towards native peoples, typified by his characterization of life in pre-contact native society as “nasty, brutish and short” (echoing Thomas Hobbes) (Waldram et al. 1992). In 1993, the appeal court reversed much of the earlier decision, and instead ruled that the Gitksan and Wet’suwet’en peoples do have “unextinguished non-exclusive aboriginal rights, other than a right of ownership” (Delgamuukw v. B.C. [1993]) to much of their traditional territory.

The decision of the B.C. Court of Appeal was appealed to the Supreme Court of Canada, which made a ruling on December 11, 1997. Although the Water Use Planning process on

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the Alouette River which forms the case study of this thesis was completed before the final *Delgamuukw* decision, this decision has implications for how future water use planning is carried out in the province.

The court did not rule on title in *Delgamuukw*, but sent the claim back to trial because of changes in the way the claim was organized, and the error made by the trial judge in his rejection of the oral history as evidence. The Court did give a means for assessing Aboriginal title. In order to prove that it holds Aboriginal title, an aboriginal group must:

- identify the precise nature of particular practices, customs and traditions, and identify the general boundaries of the area that has been used continuously;
- prove that the occupation of that land has been continuous since the assertion of Crown sovereignty (although it is possible for continuity to exist if the present occupation of land is connected with pre-sovereignty occupation in another area); and,
- continue to occupy and use the land as part of their traditional way of life. However, title is not limited to the traditional uses of the land, but rather "incorporates present-day needs", including mineral rights.

*Summarized from* (*Delgamuukw v. B.C.* [1997]*)

The Court recognized that Aboriginal title is not absolute and that infringement of title by provincial or federal governments could occur if it "furthers a compelling and substantial legislative objective". Examples of such objectives include economic development (e.g. agriculture, forestry, mining and hydroelectric power), the protection of the environment, the building of infrastructure and the settlement of foreign populations. However, infringement on aboriginal title must be "consistent with the special fiduciary relationship between the Crown and the aboriginal peoples". The court suggested that this fiduciary relationship may be satisfied by involving aboriginal peoples in decisions that affect their lands. Finally, fair compensation is generally required when Aboriginal title is infringed.

Finally, the decision reinforced the importance of the approach taken by the existing treaty-making process. As stated by Chief Justice Lorimer, "the best approach in these types of cases is a process of negotiation and reconciliation that properly considers the complex and competing interests at stake" (*Delgamuukw v. B.C.* [1997]).

Although there have been few high profile legal decisions which definitively and specifically deal with water, a case can be developed for including rights to water as an aboriginal right. The Delgamuukw decision and those before it have defined aboriginal rights in a
sufficiently liberal manner as to include a right to water, at least in so far as it impacts the ability of an aboriginal group to engage in traditional activities such as hunting and fishing. The Supreme Court decision in Delgamuukw has taken the discourse around aboriginal rights further. Although claims to aboriginal title are through traditional and cultural activities, once that title is established, it includes non-traditional uses of land and resources, including industrial development. One wonders if the next wave of native activism will be in business and resource economics rather than in treaty negotiations.

4.1.4. The Right to Manage Water: Local Government and Other Organizations

Local governments, such as municipalities and regional districts, do not have jurisdiction over water in the same sense as the governments of Canada, BC and or even First Nations (through Aboriginal title). In British Columbia, they are given certain powers by the provincial government through the Municipal Act [RSBC 1996], and other associated legislation. In general, the rights of local governments are limited to management of land. This can have an impact on water resources, however, as zoning bylaws and Official Community Plans (OCPs) can influence how the city develops and the quality of stormwater that is produced, which can have a severe impact on water quality and quantity.

Local governments are often involved in the referral process, by which applications for permits, leases and licences are passed between different government agencies for comment. Although local government does not have official jurisdiction over water, given the potential impact of development on land on water quality and quantity, their involvement in the referral process is highly pragmatic.

Increasingly, municipalities are being given responsibilities that would have previously been carried out by the federal and provincial levels of government. For example, the province has developed a strategy for managing municipal liquid waste (BCMELP, 1995); however, individual Liquid Waste Management Plans (LWMPs) are being carried out by regional districts and municipalities, who are carrying out the substantive work of public
consultation, research and analysis\(^7\). Thus, although the province is officially overseeing the LWMP program, municipalities and regional districts actually have a fair degree of de facto control over how the program is carried out.

Up to this point, this chapter has been a review of the rights of various governmental organizations to participate in water resources management. Figure 4.1 summarizes the various influential pieces of legislation and court decisions.

As can be seen in Figure 4.1 there are a few organizations or individuals in addition to the four levels of government with legal rights to be involved in water resources management. As previously mentioned, the rights of riparian landowners to water have largely been removed by the provincial government, however, some residual rights remain, although

\(^{7}\) For example, information on parts of the Greater Vancouver Regional District's LWMP are available at http://www.gvrd.bc.ca/go/work/drain.html
there is controversy as to their extent (Thompson, 1987). Water licensees and riparian landowners are also given certain rights under the provincial Water Act to participate in decision making. For example, they can file an objection to a new water licence if they feel that licence will prejudice their rights. However, the involvement of riparian landowners and licence holders in the process of decision-making is limited. There does not appear to be a requirement in the Water Act to carry out consultation with existing water licensees or riparian landowners when a new licence is granted.

Other stakeholders who are outside of the governance institutions, and who are not riparian landowners or water licence holders are left with even more residual claims to manage water resources. Their involvement depends on policy initiatives in water resources management, which often have a public consultation component.

4.2. POLICY

4.2.1. Water Policy In The B.C. Context

In addition to the legislated rights of various government agencies, there have been various policy initiatives which have an impact on water resources management. Water resources management has historically been focused on economic development, and putting flows to their best short-term economic use. There was generally little worry about the possible effects of economic development on the water quality and instream flows available to downstream users, much less the protection of fisheries or other environmental resources. For example, although the federal Fisheries Act prohibited the obstruction of fish passage, no provisions for the passage of fish at dams was made in BC until the 1950's (Dorcey, 1987). The emphasis on economic development continued as management began to shift towards a recognition of “multiple objectives” in managing water. Benefit-cost analysis was being promoted for use in all natural resource projects, and guides were published describing its methodology (Dorcey, 1987).

The federal government became increasingly involved in water resources management in the late 1960's and 1970's, with the passage of the Canada Water Act in 1970 being one of the formal markings of the increase in federal involvement. The Act was intended to provide a means for federal and provincial governments to jointly fund and plan for water resources management, with a focus on water quality problems due to pollution. Major basin wide planning studies were carried out across the country, such as the Okanagan
Basin study; the studies analysed water resources management in terms of multiple objectives, including domestic and industrial water supply, irrigation, waste disposal, hydroelectric power production, navigation, flood control, fisheries and recreation (Dorcey, 1987).

However, amid the economic recession of the early 1980's, funding for research into water resources became scarce. For example, between 1979 and 1983, there was a 25% reduction in the funding of research, adjusted for inflation (Dorcey, 1987). There was also some scepticism as to whether all of the basin wide studies done in the 1970's, which spent most of their resources researching the technical aspects of water quality, had taken the best approach to resolving water quality and quantity problems.

The flavour of the decade for the 1980's was "integrated planning" - Integrated Watershed Management Plans (IWMPs). IWMPs were developed to integrate issues related to "community watersheds", which are defined as watersheds that drain an area less than 500 km², include a land base of at least 50% Crown land, and supply a community water users' group with water through a valid water licence (BCMOF, 1996). They are the joint responsibility of BC Ministry of Environment, Lands and Parks (BCMELP) and the BC Ministry of Forests (BCMOF), and involve other agencies and users in developing plans and addressing the impacts of various resource uses on water (i.e. forestry, ranching, mining, and recreation). The plans only apply to the Crown land within the watersheds, although co-ordination with private landowners is also envisioned. The future of IWMPs remains uncertain, however. Of the 494 community watersheds in BC, 60 were prioritised for IWMPs; only 22 had been initiated and 10 completed by 1995 (BCMOF, 1996). Despite the initial hopes that IWMPs would deal with the impacts of all resource uses on water, their focus has generally been on land based activities such as forestry and mining, rather than instream activities. In the 1990s, the land/water conflicts, especially those occurring on Crown land, began to be addressed in forums more closely associated with the Ministry of Forests; regional land-use planning initiatives like the Commission on Resources and Environment (CORE) and sub-regional Land and Resource Management Plans (LRMPs) (CORE, 1995). Instream activities such as hydropower development were never seriously a part of IWMPs, but became even less a part of the process with the shift to land-use planning.
Traditionally, instream flow issues related to hydropower facilities tended to come up when new projects were being proposed, through the provincial and federal environmental impact assessment (EIA) legislation, which provides for assessment of projects on a case-by-case basis. The provincial government's environmental assessment process began as non-legislated guidelines in various sectors. These process changed in 1980 with the passage of the *Utilities Commission Act*, which created the BC Utilities Commission (BCUC), which was responsible for reviewing major energy projects among other duties (Thompson et al. 1981). Proponents made application to the provincial government agencies, which screened applications and decided whether or not to recommend a public review to cabinet. Some projects would be reviewed in public by the BCUC, while others would be simply reviewed within the government agencies. The process carried out by the BCUC was a quasi-judicial one involving lawyers, sworn testimony, cross-examination heard by a "neutral" commission, which then wrote up a report either recommending or rejecting a project. If the project were approved, the end result would be the granting of an Energy Project Certificate, which specified the conditions under which the project could be built. The BCUC continues to exist, although it tends to deal with regulating utilities and their rates rather than carrying out EIA. The provincial EIA process is now the responsibility of the BC Environmental Assessment Authority, which is governed by the *BC Environmental Assessment Act* [RSBC 1996]. This act and its associated regulations set out specifically what kinds and sizes of projects must be reviewed. In addition to encouraging the participation of interested members of the public which began with the Utilities Commission Act, the BCEAA process allows for project documents to be accessed by the public (BCEAO, 1997).

Likewise, the federal environmental review process began with the Environmental Assessment and Review Process (EARP) guidelines, which were used to carry out EIA at the discretion of the cabinet. This changed in 1992 with the new *Canadian Environmental Assessment Act* [1992]. The Act was created after federal court decisions on the Rafferty-Alameda and Oldman River dams ruled that guidelines were a legally enforceable law of general application, not simply a process carried out at the discretion of a minister. The Act was implemented in 1995 through the creation of a new independent body, the Canadian Environmental Assessment Agency (CEAA). Both provincial and federal environmental assessment authorities emphasise the importance of public participation in environmental assessment, openness of records for public review and the goal of sustainable
development (CEAA, 1998; BCEAO, 1997). Partnership agreements are being negotiated with provincial governments in order to avoid duplication and develop joint panel reviews. However, in spite of positive developments in EIA processes, such as increased participation, co-ordination and openness, they have had little impact on environmental conflicts where rights to resources are already entrenched through water licences, waste permits, land title and leases, etc. In these cases, there is virtually no mechanism for reviewing those rights and adapting them to current conditions.

4.2.2. Re-Evaluating Water Use

As described previously in section 4.1.1 on provincial right to manage water, water licences can be revoked or altered under only very specific circumstances. A provision is made for the Water Comptroller, regional water manager or an engineer to issue an order, which the licencee must follow. Authoritative dictates from the Water Comptroller would probably be unpopular, and would certainly result in requests for compensation, thus this mechanism can only be used with caution.

In spite of the lack of review mechanisms, a number of licences for hydroelectric facilities have been informally modified over time. For example, a recent study which reviewed 10 hydroelectric facilities in the province indicated that only four of the ten facilities had licences which had requirements for fisheries flows (Ward and Yassien, 1996b). However, at some of the other sites, such as the John Hart plant on Vancouver Island, fisheries releases are made on the basis of an informal agreement with the DFO (BC Hydro, 1993).

Additionally, at the Puntledge facility on Vancouver Island, the original licence did include a clause for fisheries flows, but changes were made to these fisheries flows in the form of a provisional operating rule ordered by the Regional Water Manager (Ward and Yassien, 1996b). The set of licences which BC Hydro holds on the Puntledge requires that releases of 4.25 m$^3$/s be made, while the provisional operating rule sets out minimum summer and winter flows at various points downstream from the dam. These changes resulted in substantial increases in flows below the diversion dam at certain times of the year as compared to those set out in the licence, and decreases at other times. It is not clear

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8 For example, downstream of the diversion dam minimum flows are 5.7 m$^3$/s in the summer (10 June - 30 Sept.) and 2.8 m$^3$/s in the winter (Oct. 1 - June 10). Flows downstream of the power house
whether or not the operating order as a whole resulted in significant costs to BC Hydro. However, it does represent some flexibility in the water licensing regime, and perhaps some initiative on the part of BC Hydro.

The use of side agreements in water licensing arrangements has also given a certain amount of discretionary power to government agencies, which has enabled informal water licence review. Perhaps the most well known example of this is the Kemano hydroelectric project in north-west British Columbia. The project, built in the 1950's by the Aluminium Company of Canada (now Alcan) was based on an agreement which allowed for water diversion from the Nechako and Nanika Rivers at levels above total inflows, and did not specify any water releases for fisheries or other purposes. Additionally, Alcan was to receive permanent water rights in 1999 to any water used in power generation.

The original Kemano project used only part of water given in the agreement. Alcan began to carry out environmental and technical studies in the late 1970's and early 80's in order to build additional power generating capacity, which it called the Kemano Completion Project (KCP). There was considerable controversy over these plans, and concern about the impacts of even lower flows on the aquatic ecosystem, particularly on spawning salmon. Although the dispute almost ended up in the courts, an agreement was reached between the provincial and federal government and Alcan in 1987. This agreement allowed the KCP to be built in return for the construction of a new water release facility at the dam to allow for better control of water temperatures in the river, and implementation of a program of habitat rehabilitation and monitoring. The agreement was highly controversial in the eyes of First Nations and ENGOs -- even some of the DFO's own scientists did not support the flows and measures agreed to. However, an amended water licence was issued on December 29, 1987 which allowed construction of the KCP to begin, and stated that “the Licensee is authorized to make releases into the natural channel of the Nechako River, in accordance with the Settlement Agreement” (Appendix 2 in (BCUC, 1994)).

A number of legal, lobbying and protest avenues were followed by environmental and native groups in order to stop the KCP and ensure that an environmental assessment of the project be carried out. The end result was that the provincial government asked the BC

(like water levels in the river) are set at a minimum of 15.6 m$^3$/s in the summer, and between 15.6 and 20.5 m$^3$/s in the winter (Ward and Yassien, 1996b).
Utilities Commission to carry out a public review the project, even though it was half constructed. The BCUC was asked to review the effects of the KCP, including an assessment of impacts, consideration of options for addressing impacts, and development of mitigation measures for addressing unavoidable impacts (BCUC, 1994). However, the end result of the BCUC process were several potential alternative flow regimes, all of which were higher than those in the 1987 agreement.

The point of this long-winded example is that although the BCUC did not suggest flows which would impact the existing Kemano generating facilities, their suggestions did cut into the water licence granted to allow the KCP to be built. All this became academic when the provincial government cancelled the project in January 1995, shortly after receiving the report. However, it was perhaps the closest the BC government has gotten to a review process which impacted existing water licences.

4.2.3. Water Use Plans And BC Hydro Policy

The extent to which the Alouette Water Use Plan (AWUP) reviewed existing water licences is virtually unprecedented. As will be described in the following chapter, the process evolved out of the provincial impact assessment of a proposed expansion of the Stave Falls generating station, which uses the Alouette water for generation. However, the EIA process for Stave Falls was more like a pressure point used to ensure that a review like the AWUP occurred.

The policy background for the AWUP within BC Hydro is the B.C. Hydro Electric System Operations Review (ESOR) (BC Hydro, 1994a), initiated by a directive from the Provincial Government in June 1993. The review was intended to explain to the wider public how the B.C. Hydro integrated electrical system is operated, to analyse the social and environmental impacts of the current operations of the system, and to generate alternative operation scenarios which would increase the social benefits of the system to the province. The major policy document guiding their approach, Multiple Account Evaluation Guidelines, was developed in the same year by the Crown Corporations Secretariat, the provincial government body which is responsible for BC Hydro and other crown

The MAE is a method for evaluating alternative resource management decisions. It is an adaptation of benefit-cost analysis, where the various cost and benefit categories or accounts (e.g. economic, social, environmental) are not combined into a single metric, but are left disaggregated. This allows for economic and non-economic values to be used, and for trade-offs to be made more explicitly between the categories.

The ESOR also included a public involvement component, which included the use of various communication tools such as books, videos and advertisements to provide information about the program (BC Hydro, 1994a). There were also public consultations focussed on getting community input into the program. Introductory meetings were held in 21 different locations around the province in order to identify potential issues and explain the ESOR process. Work sessions were then carried out at eight facilities which the ESOR team from BC Hydro determined would require full scale Multiple Account Evaluations. Detailed working papers are included as appendices to the ESOR final report. Interviews were also used as a means of consultation, and were carried out with people from the various government agencies, environmental groups, First Nations, property owners, fishing and hunting groups, and fisheries and wildlife biologists. After a “Multiple Accounts Evaluation” had been carried out for each facility, a draft report was circulated to the community stakeholders and follow up sessions were held to discuss the reports.

A parallel process was carried out with First Nations, although it was not entirely successful in getting widespread First Nations involvement. Although some First Nations sent observers to workshops, there was little significant participation. The ESOR report (BC Hydro, 1994a) indicates that the lack of a pre-existing relationship between BC Hydro and First Nations made the process difficult. Barriers within the ESOR process included:

- the lack of participant funding for First Nations participants; and,
- the purpose of the ESOR process, which did not include the impact of the building of the hydroelectric system on traditional economies and culture.

The ESOR report goes on to suggest that a better long term relationship needs to be built between First Nations and itself. The report quotes BC Hydro's Statement of Principles with Aboriginal Peoples, which indicates that BC Hydro will “...endeavour to minimize the

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10 More details on the Multiple Account Evaluation guidelines are given in Appendix E
negative impacts and maximize the positive impacts of existing and future B.C. Hydro projects on Aboriginal communities" (BC Hydro, 1994a).

Another weakness in the ESOR process, identified by the provincial government in its review of the final report, was the lack of information about non-power values for water, particularly fisheries values (BCMEMP and BCMEI, 1995). Provincial fisheries officials were concerned about the conclusions being drawn by BC Hydro, that most alternative flows regimes designed to benefit fish were not worth the cost in lost power production. The provincial government was also concerned that the power cost of alternative operations tended to be overstated because conservative assumptions were made about the non-power values of water.

However, although the ESOR final report was pessimistic about the cost effectiveness of alternative operations of most hydroelectric facilities, particularly the larger ones on the Columbia and Peace Rivers, there was some optimism about the possibility of benefits to be gained from smaller facilities, mainly in the Coastal, Vancouver Island and Lower Mainland regions. This lower cost is due in part to low storage capacity in the smaller facilities, as well as their relatively small energy contribution to the provincial electrical system (BC Hydro, 1994a). Although it does not appear that any drastic changes were made to BC Hydro's operations following the ESOR, it is perhaps not surprising that the first project to be extensively reviewed in the years following the ESOR was a small facility in the Lower Mainland.
SECTION II. CASE STUDY:
THE ALOUETTE WATER USE PLANNING PROCESS
5. ALOUETTE WATER USE PLANNING PROCESS: CONTEXT AND CHRONOLOGY

5.1. Historical Context

The South Alouette River (hereafter referred to as the Alouette River) is located near Maple Ridge, B.C, where it flows from the mountains on the north shore of the Fraser River into the Pitt River, and hence into the Fraser River (Figure 5.1). In 1909, water licences for electrical power production and storage were granted to the Burrard Power Company Ltd, but they did not construct facilities to make use of the licences. The licences were taken over by the BC Electric Railway Company (BCERC), who constructed hydropower facilities over the period of 1925 to 1928 (Anonymous 1928). These facilities included a dam on the outlet at the south end of Alouette Lake, which created a single reservoir from what had originally been two lakes.

A tunnel was bored through the mountains at the north end of the lake, to allow water to flow into Stave Lake to the west. Power is then generated at the 8 MW capacity Alouette Powerplant at the Stave Lake end of the tunnel, as well as at two power plants downstream of Stave Lake: Stave Falls and Ruskin (BC Hydro, 1993) (See Appendix F for more details). Water diverted from the Alouette makes up approximately 20% of the inflows to the Stave and Ruskin power plants. BCERC applied for an additional water licence on the Alouette in 1929, giving it a total licenced capacity for diversion of 28.3 m$^3$/s, more than the average annual inflows to the reservoir, which are approximately 20.5 m$^3$/s (BC Hydro, 1994a). In other words, if sufficient volume were available in the reservoir to store flood flows, it would have been possible for BCERC to divert virtually all of the water out of the Alouette River. In fact, the capacity of the Alouette reservoir is relatively small, thus spills often occurred in periods of high precipitation.

Coupled with this high diversion rate, the Alouette water licences contained no requirements for water to be released into the Alouette River. In the original water rights hearing in January 1924, the Canadian Department of the Interior requested the installation of a low level outlet (LLO), a 36 inch pipe under the dam to allow for releases of water into the Alouette River for domestic use and log transportation (Clayton, 1996a). When it was originally installed, it was run full flow (3.3-3.6 m$^3$/s) (Clayton, 1996a); however, at some point it came to be clogged or closed. Because there were no requirements for water
Figure 5.1. Hydroelectric Power Production on the Alouette and Stave River Systems

ALOUGETTE
Nameplate Capacity: 8 MW
Ave. Annual Inflow: 21 m³/s
Storage: 155 million m³
Operating Constraints:
- Reservoir above El. 121.25m between Victoria Day and Labour Day for recreational purposes.
- Fish flow release of 0.06 m³/s at the dam, and 0.7 m³/s at 232nd St. bridge, downstream from the dam.
- New Alouette WUP constraints.

STAVE FALLS
Nameplate Capacity: 52.5 MW
Ave. Annual Inflow: 111 m³/s + 21 m³/s from Alouette
Storage: 468 million m³
Operating Constraints:
- Ruskin fisheries releases.

RUSKIN
Nameplate Capacity: 105.6 MW
Ave. Annual Inflow: 132 m³/s from Stave and Alouette.
Storage: 24 million m³
Operating Constraints:
- Block releases for fisheries, Oct. - Nov.
- 38.3 m³/s min. fish flow release, Dec. - April.

(data from (BC Hydro, 1993), see Appendix F for more details)
releases in the water licences, BCERC continued to be in full compliance with those licences despite the fact that no water was being released.

Through the 1950s and 60s, the federal Department of Fisheries and the local Fish and Game club began to raise concerns about the condition of the Alouette River. The local Fish and Game club petitioned the BC Electric Railway Company to release water at the dam for fish, but no changes were made to the flow regime (G. Clayton, 1997, Personal Communication). Reports by Department of Fisheries officers indicate that large volumes of water were often released from the dam, resulting in scouring of spawning beds (Marshall et al. 1979). For example, a large storm in November 1955 led to severe flooding and scouring of 90% of the stream bed. Other human activities were also impacting fisheries in the Alouette River, such as extensive logging which had been carried out in the early part of the century (resulting in additional siltation of the stream bed), gravel extraction in lower reaches of the river (removing valuable spawning gravel) and dyke building in the lower river (removing side channels) (Marshall et al. 1979).

In 1962, the provincial government of W.A.C. Bennett created the BC Hydro and Power Authority, a crown corporation which took over the operations of most private electrical utilities in the province. In order to put some pressure on BC Hydro to change its operations on the Alouette River, a group was organized by local resident Geoff Clayton which involved other local residents, Fish and Game club members, and a local council member (G. Clayton, 1997, Personal Communication). At the time, Geoff Clayton was working for BC Hydro as a power engineer at their thermal plant at Port Moody. Through the president of the local Liberal Association, they were able to influence the Minister of Fisheries, Jack Davis, who wrote a letter to the chair of BC Hydro, Gordon Shrum, requesting that they sit down and discuss the issue. The final result was an agreement between the Department of Fisheries and BC Hydro in 1971, which required a release which would result in at least 0.7 m$^3$/s as measured downstream of the dam, and a minimum of 0.06 m$^3$/s to be released at the dam (Hirst, 1991a). Figure 5.2 summarizes the history leading up to the 1971 minimum flow agreement between the DFO and BC Hydro.
The 1971 minimum flow release amounted to around 0.3% of the pre-dam average annual flows in the river\(^1\). Based on BC Hydro records, actual releases ranged from 0.17 to 1.2 m\(^3\)/s (0.8 - 6% of pre-dam flows) in the period of 1972-1986 (Hirst, 1991a).

Although a Department of Fisheries and Oceans (DFO) report released eight years after the 1971 agreement indicated that "...controlled water releases at the dam are maintaining good flows" (Marshall et al. 1979), a number of technical reports in the 1980's from the DFO and Pacific Salmon Fisheries Commission (Andrew et al. 1982 and Sookachoff 1984, in (Hirst, 1991a)) and the BC Ministry of Environment (Now BC Ministry of Environment, Lands and Parks, or BCMELP) (Griffith and Russell, 1980) made recommendations for increased fish flow releases. It does not appear that their recommended flows, ranging from 1.5 to 2.3 m\(^3\)/s were ever implemented.

A number of events came together in the early 1990's which led to the eventual review of flows in the Alouette River (see Figure 5.3 for an outline of events). The first event occurred in 1990 when the DFO approached BC Hydro about carrying out joint technical studies on Alouette. It wasn't until 1994 that BC Hydro agreed to carry out and pay for the studies, and a terms of reference for the Alouette Fish Flow Study (FFS) were agreed to by

\(^1\) Based on average annual inflows of approximately 20.5 m\(^3\)/s as given in (BC Hydro, 1994b)
the DFO, BCMELP and BC Hydro (BC Hydro, 1994a). A committee was created to oversee the study, which involved a number of representatives from BC Hydro’s engineering and environmental departments, and one representative each from BCMELP, DFO, and ARMS (the Alouette River Management Society, a local environmental non-government organization). The lead scientist on the FFS was BC Hydro’s James Bruce, who was responsible for fieldwork and modeling.

Within the local community, there was also a great deal of interest in the condition of the river. A task force was organized by local businessman Gord Robson in June 1993, to look the issue of the health of the Alouette River, with a major focus on the issue of flows in the river. This task force eventually evolved into two organizations: the Alouette River Management Council (ARMC), a co-ordinating body involving government and community representatives, and the Alouette River Management Society (ARMS), a locally based advocacy and stewardship group.

The technical and community based activities came together in 1995, in the review of the Stave Falls redevelopment project. Stave Falls is an older powerplant on the watershed to
east of the Alouette, which BC Hydro hoped to upgrade, replacing the ageing 52.5 MW generators with a 90 MW system. As previously described, the water diverted from the Alouette goes into Stave Lake, and forms part of the water used to generate power at the Stave Falls powerplant (see Figure 5.1). In the environmental review process for the Stave Falls redevelopment project, groups like ARMS successfully argued that flows on the Alouette should be reviewed (Orr, 1995). The Energy Project Certificate granted by the provincial government mandated that BC Hydro should review flows in the Alouette River, in consultation with the federal and provincial government, Katzie First Nation and groups such as ARMS (Edwards and Cull, 1995). This process was originally called the Alouette Operating Plan Review, but eventually became known as the Alouette Water Use Plan (AWUP).

BC Hydro announced an interim flow agreement before the AWUP process began, and released $2.0 \text{ m}^3/\text{s}$ through the LLO beginning on September 24, 1995 (on River’s Day, a public awareness day organized by the BC Outdoor Recreation Council) (Fields, 1995). This remained in place until the AWUP process was completed.

An additional factor which had a large impact on the AWUP process was a flood that occurred on November 29th, 1995. Flooding caused damage to a number of houses and properties along the Alouette River. Severe flooding of a similar magnitude had occurred before, such as in 1980, 1960 and 1955. The fact that the Alouette floodplain has become more densely populated meant that there was more potential to do damage in the 1995 flood. However, the key element was timing: the 1995 flood occurred right as the AWUP process was beginning, and brought the issue of flood control to the forefront of local concerns.

5.2. The Alouette Water Use Planning Process

The AWUP process evolved in an area in which there was relatively little specific government policy. Beyond the mandate from provincial government to consult certain groups and develop an operating plan, BC Hydro had a great deal of freedom in determining how it consulted with those groups.

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2 The BC government has since developed guidelines for water use planning (BC, 1997a).
The consultation process for the AWUP centred around the Alouette Stakeholder Committee (ASC), a multistakeholder body involving local, governmental and BC Hydro representatives. BC Hydro was to be responsible for writing the final AWUP document; however, it was to be based on recommendations coming from the Alouette Stakeholder Committee. The process followed by the ASC was developed by a planning team (referred to as the ASC planning team) which involved Daryl Fields, who worked for BC Hydro, Research Services, and Tim McDaniels and Robin Gregory of McDaniels Research. A second consulting firm, UMA Engineering, was involved in other consultation activities related to the AWUP, but played a smaller role in the planning of the ASC. McDaniels Research was identified, along with two other consultants (Paddon, 1995a), out of a call for Statement of Qualifications issued by BC Hydro on October 20, 1995 (Fields, 1995). UMA Engineering was identified as an additional consultant by some local organizations; based on input from at least 10 stakeholder organizations (5 that recommended UMA Engineering and 5 McDaniels Research), BC Hydro proposed a joint consulting team between them (Paddon, 1995b,c).

UMA Engineering was responsible for generating an issues discussion paper (UMA Engineering Ltd. 1996b) based on background documentation and interviews with stakeholders (Paddon, 1995b). They were to assist McDaniels Research in identifying members of the ASC, and to collect and coordinate environmental assessment information to be used by the committee. For example, UMA developed a report describing the impact of various flow regimes on recreation in the river (UMA Engineering Ltd. 1996a). They were also responsible for co-ordinating several open houses which were open to the general public.

McDaniels Research was responsible for structuring and facilitating the decision-making process followed by the ASC (Paddon, 1995b). For example, they were to facilitate the development of:

- a set of objectives for the process;
- measures of those objectives;
- a set of alternative plans for managing the Alouette facilities,
- a multiple accounts matrix linking the alternatives with their impacts on the objectives and measures of the process; and,
- a trade-off decision between the various objectives and measures.
The membership of the ASC was determined in part by the Stave Falls Disposition Order (Edwards and Cull, 1995) from the provincial government, as described in the previous section. This order instructed BC Hydro to carry out a review of flows in the Alouette River in consultation with the "[BC Ministry of Environment, Lands and Parks] Regional Director, the [Department of Fisheries and Oceans] Senior Habitat Biologist, the Katzie First Nation and other stakeholders including the Alouette River Management Society" (Edwards and Cull, 1995). Additional stakeholders were identified in the preliminary interviews carried out by UMA Engineering, resulting in a total of nineteen stakeholders that were invited by BC Hydro to join the ASC (Gregory and McDaniels, 1996).

Two of the nineteen invited representatives (those from Sto:lo Nation and Kwantlen First Nation) decided not to attend the meetings, resulting in a final total of seventeen ASC members. The distribution of the representatives among the organizations is shown below in Figure 5.4.

Figure 5.4. Members of the Alouette Stakeholder Committee
In general, only one representative was recruited from each organization. BC Hydro had two representatives, and the District of Maple Ridge three, although these people were from different departments within their organizations. There were also several changes in the people representing the organizations as the process progressed, but no changes were made to the number of seats at the table.

The ground rules of the ASC process were that: (1) visitors were allowed to attend the meetings of the ASC, but could not speak or disrupt the committee’s deliberations; and (2), when committee members were away, a designated alternate could sit in for them at the table (Gregory and McDaniels, 1996).

Fifteen official ASC meetings were held from February 15 to August 13, 1996 (Gregory and McDaniels, 1996). Although I was unable to obtain complete records of the stakeholder process from BC Hydro, I did receive copies of minutes for 10 of the meetings from interview participants (ASC, 1996). These minutes indicated that anywhere from 11 to 16 ASC members were in attendance, plus visitors.

In addition to the ASC meetings, two open houses were held which were open to the public. The first (held on March 26, 1996) provided information on the objectives of the AWUP process, and measures to evaluate progress towards those objectives. Technical information was provided in each of the interests related to Alouette River and Alouette Lake (Paddon, 1996a). A second open house (held on June 12, 1996) was specifically focused on riparian residents, who were all mailed invitations. This open house provided information on the AWUP, specifically focusing on flood control measures and the new flood communications plan (Paddon, 1996b).

The final agreement of the ASC was summarized in a report by McDaniels Research (Gregory and McDaniels, 1996) which was made publicly available by BC Hydro. This report was then used by BC Hydro in drafting a Water Use Plan document (BC Hydro, 1996), which was submitted to the provincial Comptroller of Water Rights.
6. ORGANIZATIONS AND THE ALOUETTE WATER USE PLAN: IMAGES AND INTERACTION

As was mentioned in the previous chapter, the Alouette Water Use Plan (AWUP) did not simply evolve out of a government initiative. A number of organizations were involved in bringing about the process, including government organizations, environmental non-government organizations (ENGOs), First Nations and BC Hydro itself.

I analyze some of these organizations in more detail in this chapter, using the "images of organization" conceptual framework developed in chapter 3. I also examine some of the interactions between the organizations, which were key to the evolution of the AWUP process. Interview transcripts with participants provided the primary source of information for this analysis; documents supplied to me by participants were a secondary source. The interview process and quotation format are described further in Appendix B.

I have chosen to focus on organizations that were well known among the ASC members, and which were extensively discussed in the interviews. These included the federal, provincial and municipal government agencies; BC Hydro; Fraser Basin Management Board (FBMB); Katzie First Nation; the Alouette River Management Society (ARMS) and Alouette River Management Council (ARMC). Unfortunately, some organizations have been excluded from this analysis for brevity's sake. This does not mean that these organizations were not important members of the ASC, but that their organizations did not have clearly articulated public images. These included the Alouette River Field Naturalists (ARFN), a local naturalists group that was an active member of both ARMS and ARMC. There were also two members of the ASC representing riparian residents. Riparian residents as a group did not seem to be formally organized except through a fan-out communication system for warning residents of possible flooding, (see Appendix D) which one of the riparian representatives helped to organize.
6.1. Governmental Organizations

There were a large number of government agencies involved in the AWUP process, from federal, provincial and municipal levels. Although the Katzie First Nation is a fourth level of government, I have placed it in the community based organizations section because of its close relationship with ARMS. I categorized the District of Maple Ridge as a government organization, but because it was not part of the traditional water management policy circle, it also had much in common with the community based organizations.

As will be seen in further and more detailed analysis of the various levels of government involved, varying images were used to characterize government organizations. A number of participants, mainly those outside the senior government agencies, referred to the tangle of bureaucracy which often results in decisions being made that are at odds with public sentiment. One participant described this "rule by the bureaucrats" as a part of Canadian identity.

JH It’s all part of how Canada governs itself ... we’re a bureaucratic country. The politicians think they run things, but they don’t. To far less an extent as the States, for instance, down there a politician can actually do something. Up here, a politician has to check with the appropriate bureaucrat first, ask his permission.

TC Dysfunction in government is a big key, but you can’t blame the government, it’s just too complex and too large. So you can beat it all you want, it’s not going to help anything, it’s just too big an animal ... it’s got twenty legs and it doesn’t function very well.

The picture painted of government was not all bleak; government agencies were also described as organizations undergoing change, and increasingly responding to community concerns. This change was described by one participant as one of the reasons why the AWUP succeeded where previous efforts to increase flows in the river failed.

GC When I reflect and look back on the process in the 1960’s that I went through, and the process today, I find very much a unique change, an interesting change. The difference was, not only were we now raising the concern, and if you will the outrage of the local community, we had the support outside of it. We had terrific support from the Department of Fisheries and from various individuals in the Ministry of Environment. We had a political party in Victoria, in our MLA, that was listening.... So that was the unique change, that we could start the ball going downhill, and then the rest of the community of British Columbia could come in behind it, and cheer it and move it on. I believe that is one of the reasons why we succeeded this time and failed last time.

This change in the government agencies was not one that was simply coming from within. Although many participants were complimentary of the work that government members put
into the ASC, there was also a sense that the move towards openness and active negotiation with outsiders was one that was often being forced on government agencies. Tom Cadieux, who spearheaded the creation of ARMS and ARMC, reflected on the fact that the AWUP was mandated by an order from the provincial government.

TC That stakeholder model really said to me they were forced to do it, and that’s the only way that government agents are ever going to get off their duff and get something done because they keep stymieing one another, they keep avoiding. They’ve learned to be survivors in a very changing world.

6.1.1. Federal

6.1.1.1.Authoritative

The Department of Fisheries and Oceans (DFO) was the primary federal government agency involved in water resources management on the Alouette River. The image of the DFO as an authoritative figure did not come up often in the interviews I had with ASC participants. Certainly it does not compare to the present image of the DFO within the BC fishing community, where DFO is described by many as part of “a government that doesn’t listen to people and doesn’t care what the effect of those decisions is on communities” (UFAWU, 1997). In the case of freshwater habitat protection, the authoritative image of the DFO was more often used to describe its interaction with local communities in the 1960's and 70's. One participant related a conversation he had with a member of the DFO in that era.

GC I remember very clearly that one of their senior people in Vancouver said to me over the phone that if we're going to spend money on habitat improvements, or the preservation of habitat, then it would be done more like on the new Stuart spawning channel ... rather than what would be a heavily urbanized setting in years to come. We'll probably lose that fishery anyway, and consequently, it wouldn't be the best bang for our buck. So it spoke very clearly to me that the Department of Fisheries had written [the Alouette River] off, but our community certainly hadn't written it off.

The negotiation of a minimum flow agreement for the Alouette River between BC Hydro and the DFO in 1971 also cast both agencies in an authoritative light. The implication of this story for the present negotiations was that the lack of local involvement in the 1971 agreement had led to a poor solution.

GC They excluded the community, more or less told us, that political process [stops], now the biology starts, we'll deal with the biological question of what the river needs, and we believed them.
The authoritative image of the DFO was also seen to some extent in its present day enforcement of the Fisheries Act. The Act prohibits the depositing of deleterious substances into water bodies and damaging fish habitat. Some participants felt that the rigid enforcement of this Act contributed to the terrible flooding which occurred on November 29th, 1995 on the Alouette River. After a series of smaller storms earlier in the month, BC Hydro's operating engineers began to spill water from the Alouette Dam when they sensed that there was not enough storage in the reservoir to hold the rains, but limited their releases because of concerns about being sued by the DFO for damaging fish habitat (Russell, 1996).

TCh See the argument was, in the 1995 flood, whether it be true or not ... the Hydro wanted to release some water, and the Fisheries said no you can’t do that, you’ll do that over our dead body, or you’re responsible for any damage. Well, it scared the heck out of these guys here at the dam, because they didn’t want to let a bunch of water out and wreck the spawn.... They didn’t do anything, and of course the water ran over the dam and they lost the spawn anyways.

6.1.1.2. Bargaining

The Fisheries Act can be seen as an authoritative tool by those who use natural resources to produce goods and services. On the other hand, ENGOs often describe the Act as a tool which is theoretically a strong force in environmental protection, but one which is unevenly enforced. As a participant from the Fraser Basin Management Program stated:

GM Just because the DFO has the Fisheries Act doesn’t mean they’re going to enforce it. The only time they’re going to enforce it is if they think that politically they think they can get away with enforcing it. What’s happened in the past is, the province has said, you can’t enforce the Fisheries Act, you’re getting in the way of economic development ... so the feds have rolled over. It’s only recently that the Wildlife Federation and Steelhead Society has said, we’re supporting you ... through letters, lobbying and legal action that they [the DFO] feel they can go now apply their legislation. That’s the reality of the world.

In essence, environmental legislation such as the Fisheries Act, will not be enforced if there are other factors pushing for its non-enforcement. In particular, because the province has jurisdiction over water and land, and grants tenures to use those resources to private individuals and organizations, the DFO has often not enforced the Fisheries Act for fear of having to compensate those tenure holders. On some occasions in the past where the DFO has enforced the Fisheries Act at hydroelectric developments, as in the case of enforcing fisheries flows on the Nechako River, the provincial government has often sided with industry against the DFO in the courts (BCUC, 1994). Groups like ARMS provide an important ally for agencies such as the DFO and BCMELP which have an official mandate.
to protect fish and other aquatic species, as well as fish habitat. Members of ARMS also recognized the importance of collaborating with the DFO and BCMELP representatives at the table, Steve MacFarlane and Marvin Rosenau.

TC ... Marvin's contribution, absolutely 100%. Marvin and Steve working together was great. The thing was, we had allies in the process. Those allies were at the table with us, and we were their allies. So we gave them authority, and they gave us information.

In addition to bargaining with the provincial government, the DFO has also engaged in bargaining with municipalities, First Nations, ENGOs, and fishers, despite the fact that these organizations have not traditionally had a role in government fisheries management. This included bargaining with BC Hydro in order to improve conditions at hydroelectric facilities around the province, a process which was begun a number of years before the AWUP. For example, the DFO approached BC Hydro and BCMELP to suggest that they carry out joint technical studies on the Alouette in 1990. Around the same time, they also began to interact with these two other organizations through a program of technical committees set up around the province to address the environmental impacts of hydro facilities. The Alouette facility fell under the Lower Mainland technical committee.

The DFO was also involved in the Alouette River Management Council (ARMC) from the beginning (see section 6.2.1). Through Otto Langer, a member of the DFO's Habitat and Enhancement Branch, funding was obtained for various initiatives.

TC Thanks to Otto Langer, I recruited him as part of the group, he has a real passion for things, he started finding small bits of funding to keep things going.

The DFO also began to interact with community based stewardship groups in 1993 through its Streamkeepers Program, of which ARMS is a member (Pacific Streamkeepers Federation, 1998). This Program developed a series of handbooks and modules for stream restoration work, and supported and trained volunteer stewardship groups. The Pacific Streamkeepers Foundation was formed as a non-profit society to take over the Streamkeeper Program in May 1995, although it has retained strong links to the DFO. This program does not generally involve those within DFO who make decisions regarding instream flows, such as those who were involved in the Lower Mainland technical committee for reviewing the impact of hydro facilities. It was not until the AWUP process that this community based stream of bargaining began to officially interact with the technical stream.
6.1.2. Provincial

A number of provincial government agencies were involved in the AWUP. These include the Ministry of Environment, Lands and Parks (BCMELP), the Ministry of Employment and Investment (BCMEI) and the Ministry of the Attorney General\(^1\). Three subsections of BCMELP were involved: the Lower Mainland Region District’s Fish, Wildlife and Habitat Protection section (BCMELP-FWHP), the Parks Division (BCMELP-Parks), and the Water Management Program (BCMELP-WMP). The first two subsections of BCMELP were represented on the ASC, while the BCMELP-WMP was not on the committee, but made presentations to the ASC related to water law. Although BC Hydro is a provincial government agency, it is analyzed separately because it played a different role than the regulatory agencies.

The mandate of the BCMELP-FWHP is to protect freshwater fisheries and fish habitat, while the BCMELP-WMP administers the water licensing system in the province. BCMELP-Parks administers provincial parks, including Golden Ears Provincial Park which covers a large area around Alouette Lake and the upper Alouette watershed. BCMEI was involved as a representative of the Crown Corporations Secretariat, the agency to which BC Hydro reports as a crown corporation.

6.1.2.1. Authoritative

The authoritative decision maker was not the dominant image of provincial government agencies. One exception is the illusive “Comptroller of Water Rights” (the Comptroller), a bureaucrat within BCMELP-WMP who has final decision for all changes to water licences, including water use plans. The Water Act, the legislative backing of the Water Management Branch, provides a certain conservatism and cautious legal approach which the other agencies do not seem to have.

BCMELP-WMP was also seen to be closely linked to BC Hydro. For example, BC Hydro had been diverting more water than it was licensed at several facilities, including the Alouette (Ward and Yassien, 1996b; Ward and Yassien, 1996a) (see section 6.1.3.1). As

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\(^1\) The Ministry of the Attorney General was involved through Tom Cadieux, the Director of Programs at the Alouette Correctional Centre. Tom Cadieux helped to organize the Alouette River Management Council and Society, and his role is discussed in section 6.2.1.
explained by Geoff Clayton of ARMS, there was a sense that “there was silent compliance by the province of British Columbia, because the comptroller’s office and the province knew very well what was taking place” [GC]. Further, because water taxes were being collected by the province proportional to the generating capacity of the power plants, to some extent the province was benefiting from the situation.

This dual role played by the provincial government as resource owner and environmental regulator has long been a barrier to adequate regulation. The fact that the province has benefited from resource development, through mechanisms such as water licence and stumpage fees has traditionally hampered the effectiveness of provincial environmental protection agencies. In the case of hydroelectric development, the province has a second source of revenue in addition to water licence fees: it owns the crown corporation BC Hydro, the largest electrical utility in the province. Out of its profits, BC Hydro pays a dividend to the province. Although the provincial government is beginning to change, these factors have contributed to reticence on its part to make water below hydro dams available for fish.²

6.1.2.2. Consultative

The image of a consultative organization was by far the dominant image of provincial government agencies. Although consultation may be described as a benign process of a policy maker listening to “the public” and then balancing all of the views to come up with a final decision, there is also an element of control. A BCMELP-WMP member described his agency’s perspective on the public’s role in water use planning processes.

RP The process is intended to provide people with an opportunity to identify issues and a forum to discuss the issues. However, the process is not intended to give people the right to make decisions, and the discussion must be focused to fully explore all options. This ensures that the Comptroller has all the information when a decision is made.

In other words, consultation is a discussion that certainly involves representatives from outside of government, but the terms of the discussion are set by government. Many provincial government representatives saw the desirability of involving outside stakeholders

² For example, previous to the 1987 agreement on the Nechako River, the Department of Fisheries and Oceans was preparing a court case against Alcan, the operator of the Kemano hydroelectric project, to enforce minimum flows below the dam. The province intervened in the court case on the side of Alcan.
in decision-making, but also emphasised the need to focus the terms of the discussion. Thus there is a strong link between the consultative governmental image and the stakeholder image of NGOs.

One of the concerns is that "when a consensus is reached ... it is within the bounds of what is possible" [RP]. These bounds include existing legislation, in particular the Water Act. As Richard Penner stated, "the process is not a debate about proposed changes to the legislation" [RP]. He suggested that the limitations of existing legislation should be explored, but the forum for change to the Water Act is the political arena, not in the development of WUPs. Other boundaries placed on WUPs include the emphasis on involving people who are directly affected, and concern about involving provincial environmental or recreational NGOs (see section 8.1).

Although some of the non-provincial government representatives noted that a consultative approach was being taken in the AWUP, a representative of the District of Maple Ridge noted that he sensed a change in the provincial government's interest in what was going on as the process wore on, and the weight they would place on the decisions made by the stakeholder committee.

JH We all got the impression at first, or at least I did ... that no matter what we did, this was simply going to be a report that the Water Branch over there in Victoria could look at, ah rather interesting, or take seriously or whatever. When [the Water Branch representative] did come over and talk to us, I then got the impression he was very interested in what we were going to do here.... I felt that ... his decision was going to take place, based on what we decided.

What at first appeared to him to be a very authoritative consultation approach being taken by the provincial government, in which consultation was carried out which would possibly have very little impact on the final decision, seemed to shift to a consultative-bargaining approach after the visit by Richard Penner of the Water Management Branch, who seemed to take a very keen interest in what was going on.

6.1.2.3. Bargaining

There was some evidence that provincial government agencies took on a bargaining and power sharing role, both within the provincial agencies and between levels of government, as well as with ENGOs.

Within the provincial government, there was some bargaining between the BCMELP-WMP, BCMELP-FWHP and BCMEI. For example, although BCMELP-WMP wasn't a member of
the ASC, the representative from BCMEI said that she “had a close link with water as part of the project certificate process”\(^3\) [DM], and tried to make sure that BCMELP-WMP was informed about what was happening and that their interests were represented at the table.

Marvin Rosenau, a representative from the Lower Mainland BCMELP-FWHP, provided important links between Brian Clark (the regional BCMELP-FWHP representative who sat at the table most of the time) and the head office of MELP in Victoria. He was initially not a member of the stakeholder committee, but became a de-facto member at the end of the process as Brian Clark was often away. He brought important background information from work he had been doing in Victoria dealing with hydro issues around the province, such as knowledge about BC Hydro’s compliance with its water licences, and a technical understanding of fisheries issues.

MR I was in Victoria ... and so I knew what the executive was thinking about. I was also at the technical level, so I understood the broader perspective -- I helped draft the terms of reference with this in mind.

As well, strong links existed between DFO and BCMELP-FWHP, illustrated by the fact that they were collectively referred to by many participants as "the fisheries agencies". Their close link was evident when the DFO representative couldn’t make it to the ASC meeting, and Marvin Rosenau of BCMELP volunteered to sit in for him. Marvin Rosenau also played a central role in making connections between the government and non-government organizations. But as he acknowledges, it was the ability of the all of the groups with fisheries interests to work together which made the process successful.

MR It’s safe to say that we would never have gotten to the position where we got without the strong support from the Alouette River Management Society and the Department of Fisheries and Oceans. In other words, a single entity, from a single ministry could not have gotten to the position that we got to without very strong support and understanding by these other co-operative stakeholder groups.

The bargaining and interaction that occurred between those within the provincial government and ENGOs such as ARMS is more difficult to characterize. Certainly, many of those within government realized that there were benefits to working with environmental organizations, particularly agencies like BCMELP-FWHP which has a mandate to protect fish. Even within agencies such as BCMELP-WMP there was some evidence of flexibility in

\(^3\) The energy project assessment process which was replaced by the EIA process run by the BC Environmental Assessment Office in 1996.
response to challenges from outsiders, and in the case of the provincial WUP program that evolved after the Alouette, looking for proactive solutions to water management issues.

RP The WUP process challenges the regulatory agencies to fully explore all the tools available under existing legislation. The process is new, and new approaches must be found to deal with the issues.

Because of its organizational roots in the Water Act and regulations, BCMELP-WMP is used to dealing with the public in either a more formal way, through permit processes, or in a court-like adversarial hearing which the Comptroller of Water Rights uses to get input from the public. In spite of that bureaucratic history, the BCMELP-WMP has begun to change and open itself public scrutiny.

6.1.3. BC Hydro

B.C. Hydro was formed by the provincial government in 1962 when it took over the B.C. Electric Railway Company and formed a crown corporation to facilitate a series of massive hydroelectric developments on the Peace and Columbia Rivers in the interior of B.C. This “two rivers” policy of then premier W.A.C. Bennett was intended to attract the energy intensive industries expected to develop the north, such as pulp mills, mines and lumber mills. It was also intended to benefit the interior of British Columbia through a program of rural electrification which brought electricity to communities that private utilities found unprofitable (Mitchell, 1995).

This unprecedented expansion of the electrical system began to create an organizational outlook that envisioned continuous growth in electricity demands, which would require further dam and infrastructure construction. This institutional mentality collided head on with the global economic recession in the early 1980’s. When the last of the big dams on the Columbia River, the Revelstoke dam, was completed in 1984, the electricity the project produced was completely surplus to domestic needs (Jaccard et al. 1991).

Since that time, BC Hydro has shifted from mega-projects to management. Instead of capital intensive dam construction, BC Hydro has carried out a number of lower cost programs to manage existing facilities more efficiently, and to reduce energy demand through conservation. These include the Resource Smart program, which upgraded and modified a number of Hydro’s older facilities to increase energy production (BC Hydro, 1994b). The Power Smart demand-side management program began with a number of
consumer incentives to conserve electricity (BC Hydro, 1994b), but has now switched to
cost-recovery, focusing on industrial and commercial customers that will pay for energy
conservation audits and planning\(^4\). Co-ordination programs between neighbouring utilities
in Alberta and the Pacific Northwest have been developed to reduce the susceptibility to
electricity shortages in low water years.

In addition to these shifts in the technology and management of the power system, there
also appears to be a shift in the governance of the power system. BC Hydro as an
organization has begun to listen and respond to the public more actively than it has in the
past. But such a shift does not occur overnight. BC Hydro's authoritative history continues
to be reflected in its present organization

6.1.3.1. Authoritative

JH Again, you had this shadowy big looming figure over all of us, the Hydro.... Whether it was real
or not real, it's more I think that the impression with the non-Hydro people was that it was there.

The image of BC Hydro as a shadowy, big brother like figure has a history going back to its
creation in 1962. For example, Geoff Clayton describes the interaction he had with BC
Hydro management in the late 1960's. At the time he was a BC Hydro employee at the
Burrard thermal plant, but he was working with others in the Maple Ridge area to address
the issue of flows in the Alouette River.

GC ...we made representation to BC Hydro, and were treated in what I consider to be a very
autocratic, offhand fashion. They had a water license and they had no requirements for fisheries
or flood control; their responsibilities were to maximize the generating capacity of the system.

This autocratic image of BC Hydro, as an organization with goals set by the provincial
government to maximize electrical energy production and little concern for the other
consequences of its actions, is an image more commonly associated with the past.
Nevertheless, it is an image which continues to persist. One participant noted that the
conflicts on the Alouette between Hydro and the local community were fuelled by "a
perception that essentially Hydro wasn't really accountable to anybody, that they were their
own entity and could essentially tell everybody to take a hike if they want to" [SM].

\(^4\) Personal Communication from Bernard Crocker, B.C. Hydro, Demand Side Management Group,
Nov. 18, 1996.
This feeling that Hydro was not accountable to anyone was re-enforced by some analysis that Geoff Clayton did in order to determine if BC Hydro was operating within the terms of its water licence, and if the 1971 minimum flow agreement was being met.

GC Interestingly enough, when we got into the current stakeholder process, and I was going over documentation, which clearly defined that BC Hydro was in contravention of their water license and had been for years.

BC Hydro had a licence to divert up to $28.3 \, m^3/s$ out of Alouette Lake and through the tunnel to Stave Lake, but was diverting up to double that at times by opening up a bypass adit around the Alouette generating plant. While the use of that bypass was ostensibly for flood control reasons, Geoff Clayton felt that their motives were not clear, “given the fact that from time to time we know that [BC Hydro] did generate from that water” [GC]. Further, his sense that BC Hydro was not operating in a responsible manner was re-enforced by the fact that there was no documentation at the Office of the Comptroller of Water.

ARMS representatives also became aware that BC Hydro did not consistently comply with the 1971 minimum flow for many years. Indeed, it was not until 1985 when minimum flows began to consistently comply with the 1971 agreement minimum flow level (Figure 6.1). In the years between 1972 and 1994, it did not meet the criteria in 10 of 22 years, for periods of 5 to 100 days per year.
Figure 6.1. Compliance with Minimum Flow Criteria on the South Alouette River
(Data from Water Survey of Canada Station at 232nd St. Bridge, in Environment Canada (1995))

Note: Minimum flows in the chart above are the lowest daily average flows that were recorded each year.
BC Hydro’s response to previous flooding that occurred along the Alouette River was characterized by two other local residents in a similar light.

TCh In 1980 we had a flood here, a bad one. This house was totally undermined, it was cantilevered out, the foundation was gone, and whole front yard was gone. Oh, it was just a total mess. At that time there was no communication at all. BC Hydro refused to even talk to you because they said it was none of their business. They’re strictly in the power production business and nothing else.

FW I personally felt a barrier in [BC Hydro’s] willingness to participate with us no-brainers. They used that name, no-brainer -- you know, that's a no-brainer -- really that's quite arrogant.

Another ASC member, Greg Mallette, also saw the present BC Hydro organization as acting in self-serving manner. He had made presentations to a 1991 BC Utilities Commission (BCUC) hearing into power exports for the BC Wildlife Federation, which led the Commission to recommend that the operations of all of BC Hydro’s facilities in the province be reviewed in terms of their environmental impact (BCUC, 1992). The Electric System Operations Review (ESOR) was the official response to the BCUC report (see chapter 4 for details). Greg Mallette felt that the ESOR was an inadequate response to the request, and that BC Hydro was continuing to resist a meaningful review.

GM They [BC Hydro] have been dragging their feet on this for eight or nine years now. They were basically told, after the BC Utilities Commission’s hearing, they were supposed to do a review of their hydro projects, similar to the one done from BPA [Bonneville Power Administration], and they’re still not trying to do that.

This autocratic image of BC Hydro had a negative impact on many of the local representatives, who went into the ASC with feelings of apprehension and mistrust. A Maple Ridge representative described it as being “caught up in this whole us and them thing” [JH], which he thought, initially would be inevitable due to “Hydro with their resources and the people that they're going to bring out to the meetings” [JH].

6.1.3.2. Consultative

Regardless of its autocratic past, which often evidences itself in its present actions, BC Hydro is an organization undergoing change. This change to a more consultative and environmentally responsible organization is echoed in their 1997 Environmental Report, which states that

All British Columbians who use electricity, or who value the environment, have an interest in how BC Hydro manages public resources for their benefit. We’re committed to incorporating their attitudes, values and perceptions into decisions about our facilities and how they’re operated (BC Hydro, 1997).
The move towards consultation on the Alouette began with some meetings between BC Hydro executives, ARMS, and local government representatives to discuss the issue of flows. Drew Dunlop, a manager in Power Facilities recalled that those discussions weren’t particularly constructive, certainly BC Hydro recognized that there would be some benefit to the fisheries resource, in terms of putting additional water down the South Alouette River. But at that point in time, while our stated objective... in our annual report as well as our annual environmental report, is to minimize the impact of our facilities on the environment, ... we have to balance those interests and the interests that the provincial government has in keeping electricity rates in the province as low as possible.... Increasing flows down the South Alouette River would just have been an increase in our costs.

Members of ARMS also indicated that they were aware of the internal struggle in BC Hydro between the desire for greater environmental responsibility, and the fear that such changes would have high economic costs.

In 1989, the board of directors of BC Hydro passed a resolution that they would become one of the best ... environmentally structured businesses in British Columbia.... By 1992 though, I understand that they began to realize that those words had an enormous cost.... When it became apparent what some of these flow regimes would cost, I think they tended to peddle back a bit.

Similarly, a former councillor from Maple Ridge also had a negative impression of BC Hydro’s initial attempts at consultation.

One of the key players here for Hydro, ... the first time I ever met him was a presentation to council on what they wanted to do. It was a soothing, this is what Hydro's going to do, we're going to do it anyway, but this is the PR thing. Don't worry, trust us, we'll do everything right. So in that regard, my first impression was not necessarily that great ... but later on, I found that most of that team from Hydro were quite interested in getting through this in a very positive way.

Although he came to see BC Hydro as keenly interested in the AWUP process, the initial impression was one of insincerity. The sense was that consultation was really only an additional activity, and that BC Hydro would act authoritatively in any case.

Things seemed to shift somewhat after the provincial government issued the Stave Falls disposition order. BC Hydro was instructed to consult with certain groups who had an interest in the Alouette, which led to the involvement of BC Hydro’s Public Affairs group, including Daryl Fields, who was part of planning team for the AWUP process. A BCMEI representative described Daryl Fields as “the architect of all this [the AWUP process]” [DM].

Daryl Fields believes in a greater need to integrate public values in resource decisions. The Alouette provided an opportunity for her to develop a prototype model to integrate a broad range of values and interests from power generation, fish and flood control, to more difficult to measure recreation, tourism, and residential concerns. Daryl conceived of the approach and along with others in B.C. Hydro implemented it.
Although the process developed for the AWUP falls within the category of consultation, it shifted BC Hydro’s position from one of authoritative consultation, in which the consultation is merely an enabling ritual for authoritative decision-making, to a bargaining style of consultation. Despite the structuring of the decision-making context, which could be seen as heavy handed relative to more participant-driven models of public participation, there appeared to be a sincere interest within BC Hydro to make decisions based on the multiple uses of water, and the values of society as a whole.

DF We now recognise that there have been changes in values and that we have operations that probably don’t reflect those values. We know there are processes, and we’ve experienced some of them, that can provide some information and shed some light on what modifications to the use of the resource there should be.

In this shift to a more bargaining-consultative organization, BC Hydro has begun to recognize that other uses of water are important. Indeed, this shift has led to a redefinition of BC Hydro’s role in water beyond the need to maximize electrical energy generation. For example, BC Hydro representatives recognized the value of improving the public perception of BC Hydro, as well as the clarification of BC Hydro’s rights to water as important outcomes of a Water Use Plan.

DF In the bigger picture, Hydro recognises that it needs some clarity around its operating envelopes, what water it can use, when it can use it, stuff like that, which is what a water use plan does.

6.1.3.3. Bargaining

As was previously mentioned, BC Hydro is an organization undergoing change. Representatives from the local community recognized that “the values within BC Hydro are changing, but changing slowly” [TC]. This change was seen to be occurring more rapidly in some parts of the organization than others, with some people interested in working intensively with outside organizations, while others still remain unsure.

GC There are very many people that are totally committed to the improvement and the protection of the environment within BC Hydro, probably the same percentage that there is within the community, if not the province. BC Hydro had made a big change over those years, and there was still, and still is, many forces within BC Hydro that feel that if we let those wool headed environmentalists into the shop, you’re going to lose any effectiveness or efficiency to do what the core purpose of BC Hydro is, and that is to give us electrical energy at a reasonable cost, with a great deal of reliability.

Others also noted that they saw changes in the outlook of BC Hydro representatives over the AWUP process. For example, Jon Harris, a former councillor with Maple Ridge described how his initial reading of BC Hydro’s intentions for Water Use Planning changed.
As was described earlier, his initial reading was that BC Hydro would decide what the outcome of the AWUP process would be regardless of the results of the consultation. However, after the AWUP, he felt that BC Hydro's representatives had been sincere, as evidenced by their personal actions.

JH [The BC Hydro representatives] have come out to the river and brought their kids, and little clues like that tell you that ... this was a genuine project for them that they felt strongly about.

Although he sensed the sincerity of those people he was dealing with, those in higher positions of power in the BC Hydro organization were still seen as exercising authoritative decision-making.

JH [The BC Hydro representatives] were getting pressure from up above too, I don't know that for a fact, but I think they must have been getting pushed. Somebody was telling them, "What the hell's going on? Haven't you got a deal out there yet? Haven't you got those people softened up?" I don't know what they were having to tell them back, but however they handled that, they seemed to be quite dedicated.

Thus there was also an element of bargaining within BC Hydro, given the diversity of interests and values within the organization. However, there is seen to be an edge to such internal negotiations, with those who interact with the public having to placate more authoritative bodies within the organization.

Changes were also seen in the way in which BC Hydro dealt with flood events. Although in their response to previous flood events, such as in 1980, Hydro was bureaucratic to the point of avoiding all communication with local residents, it was seen as taking a more proactive approach to the aftermath of the 1995 flood.

TCh Now this time, the BC Hydro did a total about change. Now they tried to co-operate with everybody, and we organized this group we called ... the Alouette River Communications Task Team.

Tom Charters is a local resident who was a key organizer of the Alouette River Communications Task Team (ACT), which involved BC Hydro, Maple Ridge, community groups and various local residents. Through ACT, he was involved in the creation of a communication fan-out system which serves to alert local residents of potential flood conditions. The system includes various levels of flood warning, which determine what response will be made by the ACT members (see Appendix D).

Another local representative believed that there was a certain level of guilt within BC Hydro about the flooding that had occurred in 1995, even though they did not actually admit to
any blame. His sense was that they were more generous in the negotiations over instream flows as a result.

FW Because of the flood, I think Hydro were feeling repentant or guilty and perhaps were hesitant because of that disaster. Oh really, it was a disaster... So I think that they were perhaps a little more giving.

While BC Hydro’s willingness to actively participate in a flood communication program was seen as evidence of their change in attitude by some members of the community, others still had concerns. A member of the engineering department of Maple Ridge described some of the challenges they faced in working in a partnership with BC Hydro on flood communications.

LB The challenges of working with BC Hydro include firstly that they are senior to municipal governments; and secondly, they are a large organization with a hierarchical structure and in matters of policy it is difficult to know whether matters dealt with at the local level will be sanctioned by senior managers. From the municipal point-of-view, there was the concern of potential downloading of responsibilities.

For the preparation of the [flood communication] fanout, a listing of the most current owners and tenants in the flood area was necessary. BC Hydro has the most up to date record of owner’s and/or tenant’s names and addresses for their billing purposes but they were unable or unwilling to provide them. The municipality only has the current year’s tax roll for owners that is updated once per year.

One aspect of bargaining, and an overriding theme in the consensus-based decision-making literature, is an openness to those outside your own organization (Canadian Round Tables, 1993). Drew Dunlop, of Power Facilities, described the AWUP process as “opening ourselves for scrutiny, if you like, by interested stakeholders” [DD]. Although BC Hydro has had some experience with public consultation, the AWUP process broke new ground. As he stated,

DD It was not a process I was looking forward to, I was certainly outside my comfort zone. I hadn’t participated in anything like that previously, but I would unqualifyingly recommend the process for the rest of the water use plans.... I don’t see any way of achieving what we achieved without going through that process; [it was a] tremendous way of drawing the community in.

Clearly there are benefits to BC Hydro when it acts in a bargaining rather than an authoritative or consultative mode. There are also some challenges to meaningful bargaining taking place, such as the public perception of BC Hydro as a bureaucratic and authoritative decision maker. This problem is not unique to the AWUP, as it is difficult for any organization to change its image after it has become institutionalized. It is harder still,
but not impossible, to change the implications of that image, in the way an organization interacts with others.

6.1.4. District of Maple Ridge

JH The only reason I got involved was because the mayor called me one day and said, I’ve got an interesting project for you Harris, this will keep you busy for awhile. I was a sucker for anything that was interesting.

The District of Maple Ridge (DMR) has a number of obvious interests in the Alouette River. As was described earlier, municipalities do not have direct decision-making authority over water resources management in BC, although they can make decisions which affect water resources. This perhaps explains the lack of images of DMR as an authoritative decision maker.

One of the key interests which the DMR had was in flood hazard management, in which it has some decision-making authority related to residential development in the floodplain. However, the interests of the DMR were fairly broad and included interests such as recreational opportunities.

MM As a parks and recreation agency, we are obviously interested in the environment, we're interested in the recreational uses of the river, and to that end actually manage several sites along the riverbank.

Or as another DMR representative put it:

JH I could argue that my interests were all of the above, and they were. I mean I'm interested in the recreation, flood control, the fishery, the hydroelectric development.

6.1.4.1. Consultative

Some of the interviews that I had with representatives from the DMR suggest that some of them had a few concerns, at least initially, about some members of the ASC that were invited because of "political correctness". A former council member suggested that the committee "had some political correctness in it that if you could somehow avoid that you'd be probably better off, but I couldn't see -- I wouldn't have been able to make a better decision on the composition." [JH]. Particular instances of this "political correctness" included the fact that three First Nations were invited because they had overlapping claims

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5 Pitt Meadows was another local government involved in the ASC, but because I was unable to obtain an interview with their representative, I have chosen to focus on the District of Maple Ridge.
which bordered on the Alouette. Although this situation resolved itself because two didn't show up, he felt that “someone could have argued, no, just have one of them at the table because that's going to skew the thing a little bit.” [JH]. Another example he cited was that the municipalities of Pitt Meadows and Mission, who were invited simply because they had land in the watershed of the Alouette River. He also expressed some reservations about the participation of public stakeholders.

JV And the public stakeholders?
JH Yeah, they were OK.... Again there's an element of ... “political correctness”.

Thus although there was acceptance of the approach of involving a wide array of groups in the process, there were some concerns that organizations were being involved which were not necessary to the process. This approach is more typical of consultation, in which there is a need to more tightly control the participation of outside organizations. His views may not be typical of all within the DMR, as another representative felt that the diversity was important for equally practical reasons.

MM I think the diversity of interests that was represented was important, and I would encourage any process like this to include that. Because an agreement that Hydro needs to reach, needs to reconcile the competing interests for that water.

6.1.4.2. Bargaining

While representatives of the District were at times concerned that the process used in the Alouette was at times a little too inclusive, the District was also portrayed as a bargaining agent, and one which supported local concerns. For example, a representative of DMR Parks and Community Services noted that their organization was undergoing change as a result of its involvement with other organizations.

MM Our interests in the river are obviously numerous, and have been expanded by involvement with the other participants in the Alouette River Management Group [later renamed ARMC].

In general, the approach of the District to the AWUP process was a pragmatic one. They recognized that the situation was not ideal, but they hoped to see what could be done in any case. For example, some representatives had concerns about the facilitators' close relationship with BC Hydro. However, in spite of these concerns, they participated in the process because of the potential for obtaining a positive result.

6 I use JV in interview transcriptions to indicate when I am speaking (Jim Vanderwal).
Initially, one of the issues ... was that [BC Hydro] hired the two facilitators.... And so it was like, we were going to hire the fox [to look after] the chicken house ...  

Just sort of a conflict of interest?  

Yeah, it struck me as a conflict. But again, I wanted to go into it with an open mind, and work the process, to see what could be done.

Links were also developed between the local municipality ARMS, for many good reasons. As was previously mentioned, those in the municipality saw themselves as representing all of the interests — as consumers of electricity, recreational users, environmentally concerned citizens and potential flood victims. The local government had also traditionally backed requests for increased flows in the river, such as in the activities leading up to the 1971 minimum flow agreement.

6.2. Community Based Organizations

6.2.1. ARMS/ARM Council

What drove that whole Alouette Management Council was the issue of hydro project operations, and now we’re getting into the issue of urban development in that watershed.

The Alouette River Management Society & Council (ARMS & ARMC) grew out of a task force in June 1993 that was organized by Gord Robson, a local businessman. Although the task force was concerned with the impact that Hydro’s operations were having on the river, the group was also interested in addressing the broad array of human activities that affect the river. For example, one of the first initiatives that was organized through the task force was the cleaning out of a silt-filled settling pond called Mudd Creek (Cadieux, 1997). A separate group was formed, the Alouette River Management Society, as a community based organization. The task force became known as the Alouette River Management Group (ARMG), and involved a large array of government organizations and community groups. The Group was renamed the Alouette River Management Council in 1995 after a delegation of ARMG and ARMS members visited the Nisqually River Council in Washington State, and were impressed with the work that was being done there in bringing together community groups and government agencies (Cadieux, 1997).

The two organizations were organized to perform two different roles — ARMS as an advocacy group and the ARMC as a place for community and government organizations to interact.
6.2.1.1. Activist

At times ARMS played the role of an activist -- an organization that engages in adversarial behaviour, civil disobedience, and legal action. This is a role that is taken on by ENGOs in order to get the attention of those in power, or to draw public attention to an issue. It is often used by groups like ARMS who may not have extensive material resources or opportunities for voicing their concerns. The image of an activist can also be used in a negative sense, as it is done by those in positions of power to close off debate or to avoid involving themselves too deeply with outside organizations.

Many of the examples of ARMS as an activist were given in describing their activities to gain the attention of government agencies regarding the issue of flows on the Alouette River. For example, the issue of Hydro's compliance with its water licences was used by members of ARMS to draw attention to the issue of flows. A key ally here were BCMELP-FWHP members who knew that BC Hydro was not complying with its water licences on the Alouette, but were constrained by their position within the provincial government.

MR BC Hydro was in non-compliance with their water license, and we pointed that out at a number of committee meetings, and the Alouette River Management Society picked that ball up and ran with it ... their view was that BC Hydro was operating illegally in the Alouette watershed, to the benefit of Stave Falls.... Now, what Hydro wanted to do -- there were sunset clauses on those Alouette licenses -- they wanted to have those licenses changed. The Alouette River Management Society objected strenuously, and said, no, you can't change those licenses until you deal with the issue of flows in the Alouette.

In addition to the issue of licence compliance, as was mentioned previously, the non-compliance of BC Hydro with the 1971 minimum flow agreement was also an issue that raised the hackles of the local community (see section 6.1.3.1).

The adversarial role for ARMS was also seen in the way in which its organization changed over time. For example, because he worked for the BC government at the Alouette Corrections Centre, Tom Cadieux distanced himself from ARMS in order to allow the community greater authority.

TC During the water [flow] issue, I stepped out of the society as the president. Geoff stepped in. That was a political move, because I'm a government agent. It was clearly telling Hydro, the gloves are off now, this is a community issue. Sierra [Legal Defense Fund] could get involved. We are going totally community with this, we want that water.

There was a threat by ARMS to take legal action jointly with the Sierra Legal Defense Fund in 1995 to try and force BC Hydro to increase flows in the river. Although legal action was
never taken, the threat proved to be very troubling. BC Hydro representatives on the ARMC became concerned that the council was being bypassed and questioned their involvement in it (ARMC, 1995), in part because of confusion about the distinction between the two organizations. Although by that point ARMC and ARMS were two distinct organizations, Tom Cadieux was then chair of both organizations, which was perhaps seen as too much overlap between the two organizations. As can be seen from a letter written by Tom Cadieux to Carol Lamont of BC Hydro, ARMS was not thinking about legal action for the sake of being confrontational, but as a last resort.

*The decision to proceed with legal action at the time of the council meeting was not committed to. Every effort was being made to avoid that type of action. The society wants life giving water in the river not a fight with Hydro* (Cadieux, 1995).

In addition to threatening to take legal action, ARMS members also made use of the local media to publicize the issue of flows in the Alouette River. Some of BC Hydro's technical staff perceived this to be impatience with the Fish Flow Study.

JB ... people felt that the Fish Flow Study wasn't progressing quickly enough, that Hydro was stalling, and there were a lot of newspaper articles coming out, particularly in the local press ... claiming that Hydro was stalling and trying to rob water....

This role of adversarial advocate had an extended history in the area. In particular, Geoff Clayton, who was involved in ARMS from the very beginning and eventually took over Tom Cadieux's role of president, had been involved in activities in the 1960's and 70's trying to convince BC Hydro to release more water into the Alouette River. As was described in the section on government organizations (section 6.1) and BC Hydro (section 6.1.3), the response of government regulators such as the Department of Fisheries and BC Hydro itself was fairly autocratic. This led the group that Geoff Clayton was involved with to become more adversarial in their approach:

GC So then we got a more militant group together, and I would go round and talk to these groups and talk about the operating orders and talk about the fact the BC Hydro had no intention of deviating from their water license, and I felt that a crown corporation had more responsibilities than to maximize profits....

Through the president of the Liberal association out here at this time, we felt that we had a friend in Jack Davis, who was then Minister of Fisheries for the federal [Liberal] government. We wrote him and asked him to make a special request of BC Hydro. I saw the copy of the letter, it went to Dr. Gordon Shrum who was then chair of BC Hydro, and generally pressure was built, the mayor and council supported us, and we eventually were kind of adopted by SPEC [Society Promoting Environmental Conservation, a BC ENGO]
The pressure of this advocacy group eventually led the Department of Fisheries and BC Hydro to negotiate an instream flow agreement (see chapter 5 for details). In spite of the agreement, the state of the Alouette River was still perceived to be very poor, resulting in continued anger. The response of government and BC Hydro to the community, both in the 1971 agreement and in the 1993 ESOR report, did little to resolve that anger.

TC I kind of thought that on the Alouette, you were dealing with fifty, sixty years of anger and frustration by the community. Local government had tried to get water, and deal with issues almost immediately after the spillway was put in. People have stood by for years, guys like Geoff, who fought in the 70’s for water, to see the death of that river. In the ESOR report, I’m quoted as saying those summer lows are too low.

The previously mentioned flood in November 1995 raised awareness of the issue of flows in the Alouette River by literally bringing the Alouette River into the hearts and homes of many local residents. The combination of the legal and environmental instream flow issues with the threat to personal safety and property by flooding created the conflict necessary for negotiations to begin. The informal ties developed with government agencies in the process created an informal alliance during the process which contributed to its resolution.

Many of those within government recognized that they had an opportunity to turn this anger and frustration into something positive. For example, Denise Mullen-Dalmer, a member of BCMEI who was involved in the Energy Project Certificate (EPC) process for evaluating energy projects recognized the frustration of individuals in groups like ARMS who felt they had no ability to resolve long-standing flow issues. Their communication with her and others involved in the EPC process for Stave Falls Redevelopment Project resulted in the inclusion of the review of flows on the Alouette in the Disposition Order (a document giving BC Hydro the go-ahead for the Stave Falls project).

DM ARMS saw the review of the Stave Falls project as an opportunity to deal with their flow concerns. They had been trying for a long time to convince government that their issue was real and required attention. The Stave Falls project opened the door for discussions.

Thus ARMS was more than an activist in that it was able to strategically influence bureaucratic mechanisms in order to further its cause.

The image of local representatives like ARMS as activists was also used at times by those in a way which had more negative connotations. For example, some participants felt that the conflicts that occurred at the beginning of the ASC process were in part related to the activist approach of ARMS.
6.2.1.2. Source of Local Knowledge

Local organizations are also often seen as a source of local knowledge. A number of interview participants commented on the importance of the local knowledge that people brought to the table. This knowledge was credible, at least in part, because of the long experience that local people were seen to have had on the river (see section 8.5 for a more in depth discussion of local knowledge). Indeed, the knowledge that had been developed by local individuals was seen as their greatest contribution to the process by some participants.

JV  What value was the organization that people like Geoff Clayton and Tom Cadieux had done before in ... setting up the Alouette River Management Council and [Society], was that important in [the AWUP] process?

LB  Only in the fact that they personally had acquired a substantial and good background on the existing condition of the river. In other words, they had some knowledge and expertise with the local conditions.

The image of local organizations as sources of local knowledge is not at all mutually exclusive with the other images -- empowering images of ENGOs can also include an aspect of local knowledge. However, some government participants saw the value of local knowledge in processes like the Alouette WUP, but emphasised that contributing that knowledge did not extend to a decision-making role.

RP  The participants in the development of a WUP should not view themselves as decision makers. However, they are crucial to the process, as they may have local knowledge that the Comptroller needs to make an informed decision.

6.2.1.3. Stakeholder

SM  I think the value of the stakeholders coming to the table is to find out what the community wants. Forget about science for a moment. What does the community want? Yes, there was a lot of lay and historic knowledge at the table, from people like Geoff Clayton and Tom Cadieux.... They also represent a fairly large sector of the population along the river and so they're barometric of what people want to see.

ARMS was also seen as playing the role of a stakeholder, or a representative of a subgroup of the local community. This was a different role than providing local knowledge, a role in the decision-making process itself. Clearly, many within ARMS also saw their role as that of stakeholders. For example, Geoff Clayton agreed to involve himself in ARMS on the condition that they push to be involved in negotiations.

GC  I said that I would only step forward as a director [of ARMS] and offer my expertise on the hydrology of the region if this new group would guarantee that we would never step back from...
what would eventually have to transpire, in some type of negotiations, being at the table, because my experience had been, when we stepped back and let the experts take over, it just fell apart.

Tom Cadieux had been involved in rehabilitation of the Alouette River since 1988 as the director of programs for the Alouette Correctional Centre, which runs several hatcheries on the river to enhance salmon stocks. After chairing the 1993 task force on the Alouette River, he recognized that organizing the local community was as important as co-ordinating government agencies. Thus the task force, which became known as the Alouette River Management Group (ARMG) continued as a co-ordinating body, with representatives from government and community organizations. However, the Alouette River Management Society (ARMS) was formed as a vehicle for organizing the community's concerns, and to bring those concerns to government. It had a role to play as an advocacy organization.

TC  We needed more authority, the authority to break that bind in government agents today comes from the communities, so I went back to Gord Robson, and said ... I need to know this community really cares about this river over the long term, and I'd like to start a society.

For some of the local participants in the ASC who were working with ARMS, this ability to speak in a coherent way, to have a sense of direction and purpose was seen as very valuable once the negotiations began.

TCh  [Tom Cadieux and Geoff Clayton] knew exactly what they were aiming for, which is very rare in a public meeting like that. Usually people sort of shotgun, or scatter-gun it, and it flies all over the place.

### 6.2.1.4. Facilitator

*Until one is committed, there is hesitancy, the chance to draw back, always ineffectiveness. Concerning all acts of initiative (and creation) there is one elementary truth ... that the moment one definitely commits oneself, then providence moves too. All sorts of things occur to help one that would never otherwise have occurred. A whole stream of events issues from the decision, raising in one's favor all manner of unforeseen incidents and meetings and material assistance, which no man could have dreamt would come his way. (W.H. Murray, in Bolling, 1994)*

The above quote was given to me by Tom Cadieux, which he described as closely resonating with his experience with ARMS and ARMC. In describing a discussion paper he wrote on the history and future of the ARMC (Cadieux, 1997), he emphasised the facilitative role played by the ARMC in drawing in many people, who then played their own role – "there's so many hands in the pot, that the fear is when [I] write it [I] won't acknowledge them" [TC]. There is a great difference between thinking of a community
based organization as a facilitator as opposed to a stakeholder. He made an analogy that fits well.

TC I can't play a tune, but I can lead an orchestra. I don't have that gift, I'm not a tune player, but I do have the ability to work with people and draw out their strengths, work with their strengths and support them.

Facilitating the interaction between government agencies and local organizations was key to the ARMC initiative from the beginning. Instead of waiting for the environmental and fisheries agencies to come to the community, Gord Robson, a local businessman organized a task force and invited the government agency people.

TC I was quite impressed with the ability of [Gord Robson] to get a group of government agents and caring people for the river to identify the most important issues affecting the river, and to set up a small task force to get busy and get something done. Because he couldn't understand why government officials, caught in that deadlock of legal lostness, dysfunction, and lack of caring, couldn't get together to get something done.

In addition the role played by the ARMC in facilitating interaction between government and community groups, ARMS was also seen as playing a part in this facilitation. Its purpose was to make sure that everyone was there who needed to be, and putting pressure on government agencies to participate.

TC It is up to the Society to recruit and to find stakeholders, and say upwards, these are the people we see that ... have influences that have to be at the table, and we expect the political realm to tell the bureaucrat to be there.

These two organizations thus worked together, with the ARMC providing the official forum for bringing government agencies and community people together, and ARMS playing the role of activist watchdog, ensuring that issues were dealt with and that the right people were involved. One of the first exercises in bringing these two organizations together was a workshop sponsored by the DFO to identify issues and develop an action plan for the Alouette Watershed, from which a summary report was produced (ARMS, 1994).

TC I find that the document was never used.... Not that it wasn't a good document, it was so all encompassing, it was so large. What was interesting was the exercise. The exercise was the first bridging the Society and Management Group together. I did not want to lose the authority ... by bringing them together in a co-opting way.

The other facilitative role played by ARMS and ARMC was in education. For example, they held an event on the Alouette River as part of BC Rivers Day beginning in September 1995. BC Rivers Day is co-ordinated by the Outdoors Recreation Council of BC, in which public events are held by local groups throughout the province to celebrate the ecological
and heritage value of rivers. Other education and awareness raising activities included placing signs along the various streams indicating they are fish habitat, inclusion of stream stewardship educational materials in the local schools and the construction of an interpretive centre in Allco Park (Cadieux, 1997).

A number of key relationships developed between ARMS and government agencies through stream stewardship programs. As was previously mentioned in section 6.1.1.2 on the DFO, ARMS was part of the DFO's Streamkeeper Program. ARMS was able to obtain funding from various sources, including the DFO's Fraser River Action Plan (FRAP) (DFO, 1998). This funding was used to conduct biological inventories and map streams in the Alouette watershed, and to carry out stream restoration.

The ARMC was also adopted as the seventh demonstration site of the Fraser Basin Management Program in 1995 (Cadieux, 1997). This did not involve much funding, but primarily provided more exposure to the work that the group was carrying out, and to the problems they were trying to tackle, such as low base flows in the river.

One of the representatives from the DMR indicated that ARMC and ARMS played a key role in ensuring that government agencies address a number of environmental issues.

MM We're dealing with issues like how the municipality deals with siltation control in its stormwater management program.... I think all of that is being dealt with better because of the Alouette River Management initiative, and because people are watching and caring, and planning issues as they arise, and not letting the agencies, who are pressed for time, all of us, ignore issues.

Another organization that was drawn in by the facilitative work of ARMS and ARMC was Katzie First Nation. The development of co-operative alliances between environmentalists and indigenous people has occurred throughout the world; the Alouette case illustrates some of the more positive aspects of such alliances. Prior to the AWUP process, BC Hydro began a consultation process with local First Nations on the Stave Falls redevelopment project, motivated both by widening legal definitions of aboriginal rights over natural resources as well as their own policies. Often this kind of consultation is simply an extension of the referral process which is carried out between other levels of government, in which a technical assessment for a development is circulated for comment. Some of the larger and wealthier First Nations have the resources, expertise and desire to deal with these referrals, but many do not. Rick Bailey, a council member for Katzie First Nation
(KFN), described the way in which they were consulted for the Stave Falls redevelopment project.

RB We get referrals from all different forms of government, and we got the referral from BC Hydro. We said, we’re not really sure what’s going on here. We need some more information. So we got a stack of folders and binders, about a foot high. And it had all this technical stuff, water flows ... well I didn't have a clue what that meant, I’ve never dealt with that. I pay my Hydro bill and can look at the meter and that little things moves but that's about it. (Laughs)

Because of their involvement with ARMS and ARM Council, KFN asked the chair of the council for help. Geoff Clayton, who was a director of ARMS, had some technical expertise in instream flow issues helped KFN to draft a letter to respond to the development proposal. As it turned out, ARMS was trying to obtain the same information from BC Hydro, without any success.

RB Geoff Clayton, we had a chance to meet with him one day, and they've been trying to get all this information. I said, I've got all this information and I don't know what it means. Have a look at it, do you understand any of this stuff? And he looked at it and he said, yeah! That's what we need. I said take it, check it all out, come back to me and we'll work together on this. That's the way we like to do things, work together with our neighbours.

In the following meeting organized by BC Hydro at Ruskin, KFN asked Geoff Clayton if he would be their representative on instream flows.

GC I had no idea how much they appreciated that, they just said thanks and signed it, and off they went. There was a great deal of gratitude that I did that, and that helped draw them in. And then, they asked if I would come as their representative to the meeting at Ruskin that they were asked to come to. So, that, kind of closed the gap there. I was now in both places, much to BC Hydro's consternation.

Thus the work that was done by ARMS members to help KFN respond to the environmental referral for Stave Falls was key to building the relationship between the two organizations. This is not to say that they agreed completely, but that they were able to work together in a way which was mutually beneficial. ARMS was able to provide KFN with some technical expertise, and KFN supported ARMS. As Geoff Clayton stated, “they [KFN] didn't say a lot, which they don't have to, they cast a pretty long shadow” [GC].

There were some difficulties in playing this facilitative role. Chief among them was the fact that ARMS and the ARMC were held together by largely volunteer efforts. Although both groups were able to obtain funding for various projects, much of the time that people invested in these organizations was voluntary. This lack of resources made playing a facilitative role a challenge. As Tom Cadieux admitted, “I just about totally burned out doing
this, it was just too much work" [TC]. He suggested that the ARMC was not a long term solution, although he felt that it would be possible to make it more sustainable (see chapter 11 for his recommendations).

From the perspective of one of the facilitators of the ASC process, the facilitative work that ARMS and ARMC did was important in that it led the provincial government to direct BC Hydro to carry out a consultation process to review of flows on the Alouette. On the other hand, he did not feel that their work had significantly addressed the important questions about what alternatives were possible and how a decision could be made between them.

TM I would say that they [ARMS and ARMC] did a ton of work. They were ultimately responsible for the Water Comptroller's decision to hold these activities ... and to consult with these groups. They hadn't done any research per se on the pros and cons of the alternatives, and that was our focus here. So, I would say that all of their activities had an influence on what we did, but I think as it unfolded we just kind of took the whole discussion into new ground.

A similar comment was made by a representative from BC Hydro, who felt that although ARMS was instrumental in initiating the process, once the ASC process began "ARMS at the table became just one of the stakeholders, and I think that's the way they wanted their role to evolve" [DD].

From these perspectives, ARMS may have been a facilitator during the period leading up to the ASC process, but once the ASC process began, ARMS was content to be a stakeholder. Tom Cadieux emphasised that ARMS did not try to set itself up as the sole community representative, or as another form of government. Instead, he saw its role as ensuring that other groups participated, essentially a facilitative role.

TC ARMS has never tried to become a power in itself. The significance of ARMS is [in] seeing itself as a facilitator, that tomorrow it might be another group, and to be careful that we don't get an authority that could fail.

There was some conflict over the role of the ARMC as the ASC process began, which perhaps related to the fact that this facilitation role was not recognized or well understood by those planning the process (see section 8.3).
6.2.2. Katzie First Nation

According to anthropological writing on the Katzie, they are one of fifteen or twenty Coast Salish or Halkomelem speaking groups who have lived in the Lower Fraser Valley, in the area from the sea to the beginning of the Fraser Canyon at Yale (Suttles, 1955). The name comes from their winter village that stood on the north bank of the Fraser River just below what is now Port Hammond, and is also the present location of their main village (Katzie Indian Reserve #1).

The Katzie First Nation (KFN) presently holds 5 Indian Reservations totalling 340 hectares of land, as provided under the Indian Act (BCMAAF, 1998). Like many other BC First Nations, they are negotiating with Canada and British Columbia under the BC Treaty Commission process to address their claims to aboriginal title over their traditional territories. Their territory extended throughout the Pitt and Alouette drainages, including the extensive lowland swamps and marshes that were seasonally flooded every year before the Pitt and lower Alouette Rivers were dyked and the land was converted to farmland. The place names and stories about various important locations throughout Katzie traditional territory as recalled by elders speaks to the extent to which they used their territory in the recent past (see Figure 6.2).

But while traditional Katzie knowledge continues to be passed on and valued by members of the KFN, it is also a political organization. As such, the images of Katzie First Nation reflect not only the traditions in which it is rooted, but also the present day political discourse of aboriginal rights and treaty negotiations.

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7 For example (Suttles 1955) contains the summary of fieldwork carried out by anthropologist Diamond Jenness, who interviewed his Katzie elder Old Pierre in 1936, and Wayne Suttles who interviewed his son Simon Pierre in 1952.
Katzie Place Names in the Alouette Watershed

74. sa'anasał: Alouette River, more particularly the dwellings of the Alouette division of the Katzie; the site was somewhere near the mouth of the North Alouette.

75. spi'lx": The North Alouette River, particularly the dwelling site on the north bank near Sheridan Hill.

76. ax'm'ni' sa'anasał: A dwelling site on the Alouette River about a half mile above the mouth of the North Alouette.

77. pe'lexan: A rock at Davis Pool on the Alouette River, a one-legged man changed to stone by the Transformer, become the master of the fish that ascend the stream.

78. xc's'waltan: A slough connecting Alouette River and Katzie Slough.

79. xc'a'axas: A large bog south of the mouth of the Alouette River, cranberries and blueberries grew here; it was open to everyone.

Figure 6.2. Places in Katzie Traditional Territory
Source: (Suttles, 1955)
6.2.2.1. Activist

First Nations people in Canada are certainly no strangers to civil disobedience and protest as a means of dealing with conflicts over land and resources, as the high profile media images of conflict and protest at Oka, Gustafsen Lake, Meares Island, and other places demonstrate. While this extreme does not really apply to the Katzie First Nation, the image of KFN as an activist was used to allude to what they could have done. For example, one of the representatives from the DMR thought that

JH [Katzie First Nation] could have just gummed up the works and said well, we'll fix this problem here, this is a white man's problem, but you get our land claims settled first, and then we'll think about trying to work out [the issue of] water flows. They didn't do that, and they could have. They were very co-operative in other words.

Katzie's underlying co-operative attitude can also be seen in their attitude towards some legal action, which was being organized by ARMS and the Sierra Legal Defense Fund in 1995. Rick Bailey of KFN recalled that they had agreed to participate, but only because they felt there was no other recourse at the time.

RB I remember them discussing that [legal action], asking if we agreed. We said, well yes, if they're not going to do anything, they're destroying this river basically, if that's our only recourse let's do it. That's probably about the time that we came together ... with ARMS. I don't think it ever did go to court.

6.2.2.2. Source of Local Knowledge

Katzie First Nation was mentioned as a source of local knowledge by a number of committee members. One of the participants described the importance of storytelling as a way of communicating traditional knowledge and life experience.

DM It is important to hear people. If a story has been around for a long time, that may represent some value that you cannot capture in a number, or a study, or a survey.

There were the First Nations and the naturalists. They do not go out and measure how many nests of various bird species there are from year to year. However, they can describe, from year to year, the relative abundance of species. After a while, the story begins to make a picture. It is not the kind of information that can be gathered easily in a survey. People need to talk about their experience and life knowledge.

While the importance of traditional knowledge was recognized by many ASC participants, there were also barriers to its use in multi-stakeholder processes, which were identified by
Rick Bailey (see section 8.5.3). A number related to the format and adversarial nature of meetings, which KFN representatives were at times uncomfortable with.

### 6.2.2.3. Stakeholder or Self-Governing Nation?

We assert our aboriginal title to all of BC....
First Nations continue to have and will assert complete authority, jurisdiction, and decision-making in our territories and over our resources. (First Nations Summit, 1998)

This assertion was made by the First Nations Summit, an umbrella organization which represents First Nations at the BC Treaty Commission (the body which is overseeing the treaty process which began in 1990 in British Columbia). Although it was made after the AWUP process was finished, it is consistent with the position of many First Nations that self-government is part of any treaty settlement. The shift in public discourse which has occurred over the last twenty years, such as the replacement of the term "Indian Band" with "First Nation" speaks volumes for the way in which aboriginal people in Canada view themselves and are begun to be seen by mainstream society.

KFN was taking part in treaty negotiation at the same time as the AWUP process was happening, and it took a cautious approach to its involvement in the ASC process. They joined the committee, on the condition that BC Hydro recognize that their participation was "without prejudice" to future treaty-making and land claims agreements between KFN and the senior governments (Gregory and McDaniels, 1996).

Some First Nations take this position farther, and make it clear that because they are another level of government they wish to have direct government-to-government relations. KFN did not take this stance in the AWUP. The Katzie clearly took a pragmatic approach to their involvement in the ASC, which is witnessed in Rick Bailey’s advice to participants in future Water Use Plans to

RB ... put personal differences behind you, like political differences behind you. If you’re trying to save a river, work to save it.

Thus although they were mindful of the implications of the negotiations on their aboriginal rights and title, the goal of saving a river from environmental demise was a powerful motivating factor for co-operating with other community stakeholders.

A further motivating factor for their involvement in the ASC was the close relationship that had developed between them and people in ARMS and ARMC such as Geoff Clayton and
Tom Cadieux (see section 6.2.1.4). This no doubt increased the confidence of Katzie to participate in a multi-stakeholder process.

GC I don't have a great deal of experience to speak for the whole province, but I see the Katzie's as a very viable member of our community, that they see themselves as a member of the community.

The Katzie representatives were described by many of the interview participants as being fairly quiet but important members of the ASC: "... they didn't speak out as much as some people did. But they certainly made their views known and were, I think, viewed by everybody as crucial members of the committee." [TM]. In other situations, the representatives of KFN played a more active role in facilitating communication.

6.2.2.4. Facilitator

Because the Katzie are a fishing people, many of the examples of facilitation come from the fishing industry. The KFN has developed some innovative fisheries programs, such as a selective chum salmon harvesting program in the Fraser River that they developed in collaboration with the BC Ministry of Environment and the BC Steelhead Society. They used beach seine nets which enabled them to selectively catch chum while releasing coho and steelhead. While they have not perfected the method yet, in terms of catching significant numbers of chum, they were able to release all of the coho and steelhead that were caught. The steelhead were implanted with radio transmitters before they were released to enable their migration paths and timing to be tracked by biologists.

Rick Bailey described this program as directly following the co-operative approach which Katzie has adopted in the past few years.

RB 4 years ago, before I got elected, I didn’t think I’d ever see myself sitting down working co-operatively with people like the Steelhead Society. Because they were always on our case, about food fishing for salmon when we catch steelhead [as a by-catch]. And then after I got elected I said, one of the things I said is we’ve got to stop pointing the finger here, nothing ever gets done. Then I’ll work alongside people on the Steelhead Society.

The selective harvesting program also involved a number of commercial fishermen, who have also traditionally had an adversarial relationship with First Nations.

RB ... about six years ago I was on a committee. One of these commercial fishermen was on that committee too, and he just hated us, didn’t understand why we do things the way we do, but now he’s a good friend of ours, of the Katzie people. He works with us on the selective harvesting.

Many times, the KFN was described as working in a facilitative manner in informal circumstances, rather than through formal programs. Because of their involvement in
community based multi-stakeholder organizations such as ARMS, Katzie was able to build up trust with local residents, and overcome people’s fears of native “land claims”. Rick Bailey gave an example of how that trust benefited both the protection of the river, as well as the Katzie people, who gained valuable knowledge about a heritage site on the river.

RB One of the ARMS members ... we were at an ARMS meeting one night, we were talking about the river, and how he wants to protect it, and can’t do it alone. He began to realize that Katzie was there to protect this river too. Everybody was afraid of what was referred to as land claims. They figure we’re out there to grab all the land; ... we don’t call it that any more, it’s treaty negotiations, we’re trying to get a treaty.

So at this meeting he blurted out that his property may have been a Katzie village, or in the very least, a fishing camp, because his property is loaded with artifacts. He’s protecting it, because people go out there and start digging a hole in his land, looking for artifacts, and he chases them out. These are the kinds of people we came to know and understand.... This process meant a lot of good things, not only for the river, but people learned about us, that we weren’t there to take their land away, we are there to protect the river.

6.3. **Inter-organizational**

6.3.1. Fraser Basin Management Board and Program

Fraser Basin Management Board (FBMB) and Program (FBMP) were established in 1992 though a joint federal-provincial-local government agreement. The goal of the program was to put sustainability -- environmental, economic and social -- into practice in the Fraser River Basin. A Board was established, consisting of three representatives for each of the four levels of government (federal, provincial, local and First Nations), six non-governmental representatives, and a neutral chair (Dorcey, 1997).

6.3.1.1. Facilitator or Stakeholder?

Unlike many of the government organizations involved in the AWUP, the FBMP did not have a mandate as a regulatory agency, but rather acted as an intermediary between various government agencies and publics. Thus the dominant image of this organization is one of a facilitator between the various interests.

The FBMP was involved in the ARMC through Greg Mallette, a staff member at the FBMP. He also became involved in the ASC, and describes the facilitative role he saw himself playing.

GM My role as far as a Fraser Basin Management Program employee -- I saw it being twofold. One was to ensure that the proper people were represented at the meeting. For example, when we first started the process out, the DFO representative didn’t show up .... So I talked to ... the DFO
representative [at the FBMP] and I said, you’ve got to get this guy to come to this meeting, because this is a big deal. Whether he came because of my request or not is unknown, however, he did attend after that....

My other role was the fact that, I have some expertise in the operations of hydro projects, and I also have expertise on putting dollar values on environmental resources.

But while the FBMP played a facilitative role, some ASC members perceived the organization to be like an environmental group or a fisheries agency with a primary interest in protecting environmental resources.

DD  [The] Fraser Basin Management Committee representative -- again it was another fisheries representative, and there wasn’t much in the way of new or additional information that was provided ... that MELP and DFO weren’t already aware of.

The way in which an independent review of the Alouette Fish Flow Study was conducted also contributed to the image of the FBMP as a fisheries or environmental stakeholder.

Resources from the FBMP were used to fund a review of the study with the knowledge and participation of the DFO and BCMELP and ARMS. However, BC Hydro’s technical people were unaware that the review had been conducted, but thought that perhaps ARMS had sent out the study for external review (see section 8.5.2).

The perception that the FBMP represents only environmental or fisheries interests could undermine its role as a facilitator. Its past successes have stemmed from its broad support, from within all four levels of government, industry and environmental and community based ENGOs. The FBMB has recently evolved into the Fraser Basin Council (FBC), which is now a non-governmental organization with financial backing from all levels of government. The independence of the FBC from government makes it as crucial as ever that it be perceived as a body with a broad base of social, economic and environmental supporters.
7. NEGOTIATING PURPOSE AND METHODS

The previous chapter painted a broad picture of the organizations that were involved in the Alouette Water Use Plan (AWUP), the various organizational images or philosophies of those organizations, and the interconnections between them. This chapter, and chapters 8 to 10 that follow, are a detailed evaluation of the AWUP process, based on the framework developed in Chapter 3. They are focused around two general themes: the quality of public participation in the Alouette Stakeholder Committee (ASC), and the role of information in the committee’s discussions.

Multistakeholder processes, such as the process followed by the ASC, involve negotiation at a number of levels. At the most superficial level, negotiation took place during the final stages of the ASC process, when two different position related to instream flows emerged on the committee (see chapter 10). However, the negotiations that took place before the decision-making stage of the process were much more important, as they set the boundaries and context for decision-making. This chapter describes the negotiations that took place over the purpose of the ASC process, and the objectives of the technical studies which were carried out in support of the ASC (section 7.1). It evaluates how well the objectives of the ASC process matched the interests of participants, and how well the process objectives were reflected in the objectives of the technical studies. The second half of the chapter (section 7.2) assesses the appropriateness of the methods used to plan and implement the ASC process, and to develop the technical studies.

7.1. Clarity of Purpose

7.1.1. Clear reason to participate

Many people, from BC Hydro, government agencies and community organizations suggested that one of the goals of the AWUP was to “integrate public values with resource decisions” [DM]. That is, water licences given to BC Hydro “were signed in an era where there was different values, and they shouldn’t exist in perpetuity unchanged” [GC]. Daryl Fields of BC Hydro described the purpose of the AWUP as linked to the multiple uses of water, of which hydro development was only one.

DF It’s become clear to the public a long time ago, to the government, to fisheries agencies and more and more to B.C. Hydro that ... water is a multiple use resource, and that management of the water has to take into account those various uses and those various interests. The water use plan
is an attempt to take a look at this resource, and figure out how best to use it, for the good of the people of the province.

Seeing water as a multiple-use resource then informed the public participation aspects of Water Use Planning, which were

DF ... to understand what people value both in terms of what the objectives are, and how important one objective is against the others when you have conflicts in preferred use(s) of water.

Because of the way in which the ASC committee was run, using decision making tools to structure the problem, the development of process objectives was one of the first tasks of the committee. The process objectives then guided the kind of information collected -- "the process was such that we were given the opportunity to identify the areas, and then there was research done by Hydro's consultants, and Hydro themselves in the various areas" [LB].

Before the process began, four objectives were identified by McDaniels Research, the consulting company hired to facilitate the ASC process (Gregory and McDaniels, 1996). In developing the objectives, they drew on preliminary interviews with government and local community representatives carried out by UMA Engineering (1996a), a second consulting firm hired to carry out some background research and conduct open houses. These four objectives were then discussed by the ASC during its initial meetings, which resulted in the addition of a fifth objective related to learning and adaptive management (Box 7.1).

Box 7.1. Objectives for ASC

1. Avoid adverse effects of flooding
2. Promote the ecological health and productivity of South Alouette River and Alouette Lake.
3. Avoid cost increases for provincial electric supply.
4. Promote recreational opportunities associated with Alouette Lake and South Alouette River.
5. Promote flexibility, learning and adaptive management regarding impacts of water flows on ecology of South Alouette River and Alouette Lake.

(Gregory and McDaniels, 1996)

Although conflicts did arise over how these objectives were put into practice, there was general agreement about them. Not all participants were equally concerned about all of the objectives, as would be expected, and many had other objectives for the AWUP within their own organizations.

The fact that there was substantial agreement on these objectives from local organizations like the Alouette River Management Society (ARMS) was not surprising, given that they
envisioned their activism would eventually result in negotiation over flows. As stated by Geoff Clayton, the president of ARMS, "ARMS is a society with a purpose, to get more flow in the river" [GC]. Not surprisingly, many of the ENGO and First Nations representatives emphasised the importance of improving the ecology of the Alouette River.

TC Hydro has ... due diligence to work and strive to restore that watershed as best they can to its former glory. Now we all know in reality that will never happen. But, they still have that responsibility, and they should be held accountable to that, and the Ministry of Environment as well.

RB we were trying to get more water, and they had all kinds of reasons why they couldn't

Given that a number of ARMS members and other local representatives were also riparian landowners, they were also strongly supportive of measures to reduce the impacts of flooding.

Another local representative involved in the Alouette River Field Naturalists stated that

FW I thought that ... the agenda was appropriate, and I could see that it was going to cover everything that I was interested in, and the Field Naturalists were interested in.

Likewise, while BC Hydro representatives recognized the importance of improving the ecology of the South Alouette River, this interest was constrained by their mandate from the provincial government to minimize costs to the electrical electricity supply (see section 6.1.3).

Representatives of the District of Maple Ridge (DMR) felt that they had a wide range of interests in the AWUP, including interests in the ecology of the river and electrical power produced from its water (see section 6.1.4). However, one of their overriding interests was in flood control. As a council member of the DMR stated, "I can't not consider flood control, and my particular position being there as a stake holder" [JH]. Another of their key interests was in opportunities for downstream recreation, given that they manage a number of parks in the South Alouette River corridor.

As was described in the previous chapter many of the organizations involved in the AWUP also began to see the importance of the objectives and interests that other organizations had in the Alouette River, and engaged in bargaining or facilitation which required them to take the interests of the other participants into account.

In spite of agreement by the ASC to a single set of objectives, one participant was concerned about the lack of clarity of the purpose of the ASC in terms of how it fit into the
provincial government's existing decision making processes. He felt that things became
clearer when a member of BCMELP-Water Management Program (BCMELP-WMP) made
a presentation to the committee part way through the process.

JH  The other little problem that we didn't discuss was, what actually is going to happen here? And
what actually was taking place there was Hydro was applying to the Water Branch in Victoria ...
for a water lease, that was either going to be granted, or not granted....
One of the reasons we got off the track a little bit at the beginning was because we weren't really
clear. There was a government person there ... [who] at times was a little bit overbearing. Don't
worry about this — this is nice, but we're going to decide anyway, type of thing. Again that's only
my personal opinion...
But then when [the BCMELP-WMP representative] came over and talked to us one evening, I got
a different impression.... What he heard was that this was working, and he was going to be
guided by what happened here.

Jon Harris' initial perception was that BC Hydro and the provincial government were taking
a very narrow interpretation of consultation and were not taking the process very seriously.
Although he recognized that there may have been no overt and official statement from
BCMELP-WMP that they would follow the ASC's recommendations, he felt that the ASC
was being taken seriously and being watched with interest. This issue of consultation-vs.-
collaborative decision making will be discussed further in following sections (7.2.1 and 8.3).

Another wider policy concern expressed about the AWUP was the need for a system wide
approach for integrating WUPs around the province. This was expressed by some
participants, particularly those who had an interest in hydro developments in other parts of
the province, such as representatives from the Fraser Basin Management Program
(FBMP), and some government organizations.

GM  One of the big problems with the approach that BC Hydro is taking now is they're not taking a
system wide approach to the operations of their dams. What they're doing is they're solving
problems at each individual dam. But ... if you solve a problem at the Alouette, that could put
more stress on another hydro project somewhere else. They don’t see it that way, because for
them, it’s just all politics, we’re going to one, two or three and hopefully everybody will go
away.... I have never really seen any evidence from BC Hydro that they have been pro-actively
moving towards addressing this issue, they're always pushed to do it.

Greg Mallette was concerned that non-power objectives besides fisheries may not have
been looked at very critically, which may be a concern for future WUPs.

GM  One concern I have is that even if we get what we're looking for, it may only be enough to meet
the needs of the fisheries agencies, because the Fisheries Act seems to be driving it.... It may not
meet the needs of people who need things like recreation and all that, or log transport and all
those different types of things. So, we'll just have to wait and see.
The AWUP was also seen as having a goal of managing resources wisely, but not in assigning blame for past mismanagement. The approach taken to flood control is illustrative. Many of the local participants felt that BC Hydro was to blame for much of the damage caused by the flood in November 1995. However, the purpose of the ASC process was clearly not one of assigning responsibility. Instead, the consultants moved the discussion towards changes in the long term operating rules which would improve future flood control, rather than assign blame for the past.

TM  [We] made the case that you'd like to find a culprit for this but, in essence the reason that there was a flood is because you live downhill from a place where it rains very hard on particular occasions, and water flows downhill. The fact that there is a reservoir, dam and diversion tunnel there provides everybody with kind of a false sense of security. But no-one can build a dam big enough, or a tunnel big enough, to promise you that there will never be a flood.

It seems clear that the committee members were able to move from a discourse of blame to a discourse of wise management. It may be the discourse of blame was a useful tool for organizations in their activist mode, in trying to create awareness about the issue of flows on the Alouette, but was perhaps not particularly useful when trying to influence more powerful organizations to set future direction. The transition from blaming to wise decision making was described by some as a “venting process” where BC Hydro representatives were bombarded with the frustrations of stakeholders, which it had to listen to before expecting the committee to move on (section 9.1). Perhaps, as one participant stated, the recognition of this frustration was a necessary precondition to moving forward.

MM  In order for the negotiation to happen, BC Hydro has to recognize that there is a sense ... of an imbalanced ledger that needs to be balanced. And I think on the other side, there has to be an acknowledgement that it needs to be based on some kind of science. That you can't just, on gut feel, go ahead and say we need this because we feel we need it.

The first level at which this integration of science into multi-stakeholder processes takes place is in the integration of research and process objectives.
7.1.2. Clear research objectives

Many of the ASC participants would agree that multi-stakeholder decision-making processes should be informed by scientific or technical knowledge. Although some expressed skepticism about the way in which some of the studies were conducted on the Alouette, and suggested ways in which they could be improved, no one suggested that decisions be made without developing some sort of an information base.

One of the conclusions of the Electric System Operation Review in 1993 was that information on the uses of water other than power generation, such as aquatic habitat, was lacking (see Chapter 4). From a provincial government perspective, “the Water Use Plan process is a way of trying to fill that information gap.” [DM]. Many in BC Hydro also saw their role in collecting technical information, and in making the connection between that information and the values of stakeholders.

What BC Hydro can do, and did in the Alouette was to facilitate a public discussion ... to pull together all the information on the technical linkages between water and some of the objectives that society has for that water.

There were three key research areas for the ASC. Separate studies were developed to measure the links between flows in the river and fish habitat, and flows and recreational value. A third key area of technical information was hydrological modeling to estimate changes in power production and the probability of flooding.

7.1.2.1. Fish Flow Study

The Fish Flow Study (FFS)\(^1\) was overseen by a technical committee composed of a number of BC Hydro’s fisheries biologists as well as representatives of their Power Supply group. The committee also included one representative each from the Department of Fisheries and Oceans (DFO), BCMELP, and ARMS. One of the first activities carried out by the FFS committee in 1994 was the negotiation of the terms of reference and objectives for the study (Box 7.2).

\(^1\) Also referred to as the Instream Flow Study (IFS)
Box 7.2. Fish Flow Study Objectives (1994).

The overall objective of the Alouette River Flow Study is to assess the incremental changes in tangible and intangible fisheries in the South Alouette River associated with flow discharge from Alouette Lake reservoir. To meet this objective the three sub-objectives of the study are to:

1. Define the relationship between fish habitat in the South Alouette River and flow release from Alouette Dam.
2. Define the relationship between fish production and flow in the South Alouette River.
3. Estimate the incremental change in fisheries values associated with increased flow releases from the dam.

(BC Hydro, 1994c)

The Fish Flow Study (FFS) was well developed before the creation of the Water Use Planning process and the ASC. For example, a report describing the study sites had already been written and released (Bruce, 1995a), and the field work data which was used to develop the physical habitat model had been collected. Based on the draft reports produced for the FFS (e.g. (Bruce, 1996a; Bruce, 1995a)), it appears that not much work was done to fulfil objective (2) or (3), but rather, most work focused on the relationship between fish habitat and flow releases in the Alouette River.

Given the investments in time, money, personal and institutional commitment, it seems hardly surprising that the ASC chose to use fish habitat as a measure of the ecological impact of changes in flows, as opposed to any other measure. One of the facilitators described an additional reason for this choice -- the difficulty of using "numbers of fish that are produced because of the whole question about how fisheries are managed" [TM]. In other words, other factors such as the fishing effort on the Alouette salmon stocks could have a profound effect on the number of fish which return to the river (referred to as the escapement), thus the number of fish does not provide an accurate measure of the health of a stream. It does seem that the first study objective in Box 7.2 had widespread support. The FFS was controversial, but mainly in terms of the methods, interpretation and credibility of the study rather than the objectives themselves.

Geoff Clayton did identify one additional area of knowledge related to fisheries which the ASC should have spent some time on². In retrospect, he felt that it would have been useful

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for information to be collected about the true baseline conditions in the Alouette River before the dam was built. He suggested that perhaps old Department of Fisheries records could have been examined, or that core samples of Alouette Lake could have been taken to a lab at UBC to estimate the productivity of the system in former times. This would have given people an idea of what kind of fisheries resources had existed, and where the ASC should be aiming in restoring the Alouette River.

Although there did not appear to be any major conflicts between the objectives of the fish flow study and the objectives of the ASC, several people recognized that setting the terms of the studies before carrying out public consultation was not the ideal approach. Daryl Fields, who oversaw the planning of the ASC process for BC Hydro, stated that "my druthers would have been to start the consultation process first, and then identify ... what measures we were going to use" [DF]. She identified two factors which made the FFS useful in spite of this difficulty. First, the involvement of people like Geoff Clayton, Marvin Rosenau, Steve MacFarlane and Graeme Matthews on both the ASC and the FFS gave the study some credibility. Second, the FFS information was beginning to be available at the time that the AWUP process began.

DF  It was a combination of, we have this information here, why don't we use it, and those people essentially saying, we think this is the appropriate way to go.

There were more divergent perspectives on what the broader goals were for these studies. James Bruce, BC Hydro's lead scientist on the study, described the studies as an attempt at

JB  . . . trying to incorporate more science and objectivity in the decision making process of setting minimum flows, rather than have people haggle, adopt positions, and argue over the table based on their beliefs and institutional biases. . . . The development of a Water Use Plan was not the original intent of the Fish Flow Study -- that term had not even be defined yet. It was just simply a detailed study to provide the decision makers within Hydro the information necessary to make an informed and balanced decision regarding the use of the Alouette River water resource. This included some cost-benefit analysis, but there was no formal structure in place to carry out a stakeholder consultation process. That came about much later...

His sense was that initially BC Hydro was not planning to carry out extensive public consultation related to the FFS, thus the purpose of the study was to scientifically inform BC Hydro's decision-makers. Some of those in ARMS felt that the FFS not only had a scientific or truth seeking purpose, but also had a strategic purpose for BC Hydro as a corporation.
Once you come to a position where you realize that change is going to be forced on you, then the best position for a corporation to take is to try and lead the change, you therefore have some control of it. ... Some of their biologists were telling them that fish don't necessarily need a lot of water, they need consistencies in flows at certain times of the year. And I think to that end that it was thought that if they could get involved in an instream flow study based on science that ... they may be able to come up with a heck of a lot cheaper agreement on a water use plan. The public would be there with emotion and passion, that more water is more fish, and so it would be money well spent to go out and come up with a scientifically defensible number.

Because the study was being overseen by a committee which included government agencies and ARMS, it had to justify itself to some organizations outside of BC Hydro. Further, it also had to justify itself within BC Hydro, not only to those who were interested in making their organization more collaborative, but to those who wanted to make sure that it remained a profit making corporation responsible to its major shareholder, the provincial government. James Bruce made it clear that it was not easy to convince his organization that it was important to carry out the FFS.

One of the problems I had was to try and sell the fish flow study within Hydro, it was big dollar commitment to do a study like that, and like any business when you fork out money, you'd like to know what kind of return you're going to have on your 'investment'. And if you don't know what your return is, which was the case here because I could not predict what the minimum flow would be based on the research work, you're really going to be quite reluctant to spend the money. ... I think that's a struggle with any business where you have to do research, you have to justify it without trying to predetermine it's outcome.

Whatever form the discourse inside of BC Hydro took, those within senior management must have eventually been convinced of its merits, and granted funding to carry it out. The debate about the study and its merits continued throughout the following years, up until the final meetings of the ASC.

7.1.2.2. Recreation Analysis

The work done to link recreation and flows in the Alouette River was carried out at the same time as the ASC process. The analysis was carried out by UMA Engineering Ltd., a consultant being paid for by BC Hydro, but who BC Hydro representatives and others described as being responsible to the ASC.

The objectives of the recreation study as described by UMA in their report (Box 7.3) do not appear to have been set in the terms of reference initially given to the consultants by BC Hydro (attached to (Paddon, 1995)), beyond the statement that UMA would "provide
technical advice on measures”. Instead, the objectives seem to be strongly influenced by
the recreation objective set for the ASC (see section 7.1.1).

Box 7.3. Alouette Recreation Study Objectives.

This report provides a qualitative overview of the issues and trade-offs associated with
modifying current operational characteristics of BC Hydro’s generating facility on the
recreational resources of the area. Recreational use, opportunities and values were
considered for Alouette Lake (Golden Ears Provincial Park) and the Alouette River. These
must be considered in conjunction with the other impacts and trade-offs such as fisheries,
flood control and power generation. (UMA Engineering Ltd. 1996b)

The connection between the ASC process and recreation objectives suggests that there
was widespread support for this objective. Indeed, few participants raised concerns about
the objectives per se. The greatest difficulties were encountered with the boundaries,
methods, implications and interpretation of the studies. These are described in further
detail in the following section (7.2) on the Appropriateness of Methods.

7.1.2.3. Modelling of Flood Control and Power Production

Box 7.4. Flood Control and Power Production Modelling Objectives.

BC Hydro staff conducted extensive simulation modelling about flood control and power
production, considering a wide range of possible operating scenarios (Gregory and
McDaniels, 1996)

The modelling that was done to predict changes in frequency of large floods, as well as the
impacts of these and other changes in flows on power production were made using BC
Hydro’s in-house hydrological models. These models were run to predict the results of
various alternative scenarios for operating the Alouette facilities, and the implications these
would have on how much electrical energy would be generated. Thus although the
modeling work was not new, in the sense that the models already existed, the models
answered new questions during the ASC process because the alternative operating
scenarios had not be seriously examined before.

The hydrologic models were also used to estimate the amount of energy produced, not
only under the flood control scenarios, but under the various LLO releases as well.
Changes in energy produced could then be converted to their economic value, based on
assumptions about the market value of electricity.
7.2. Appropriateness of Methods

7.2.1. Appropriate form of public involvement

This section takes a general overview of the AWUP process — the participation criteria in the following chapters give more detailed analysis of specific aspects of the ASC process. A number of characteristics of the ASC process were seen in a very positive light by the participants. Its businesslike and pragmatic approach was preferred by many of the participants in comparison with more unstructured processes. An unstructured approach was described by a provincial government representative as

DM  ... having a general chat with no clear objectives or end points. In this kind of environment participants are usually uncomfortable and come up with vague recommendations. In a more structured process, like the Alouette, participants are clear that their input is valued and will be part of the process for resolving concerns. The Alouette process was a “roll up your sleeves and get down to business” kind of environment; participants were willing to work and it proved fruitful in the end.

Many other interview participants concurred with this evaluation. As one person suggested, “it was a fair process, and the proof of the pudding is the end result, which we, I think, all feel very good about” [MM]. Some within BC Hydro concurred, and felt that their improved relationship with the community was one indication that public involvement methods in the AWUP had been seen as appropriate by the local community.

DF  The relationships we have with that community are far better than they have been in years. So, I think in retrospect, those involved in the stakeholder committee probably thought it was an appropriate way to involve them.

Although those within BC Hydro felt that the ASC process was appropriate in hindsight, at the time it was proposed there was a great deal of tension within the organization. As was described in the previous chapter, BC Hydro had a history as a fairly inaccessible and bureaucratic organization, which continues to be juxtaposed with its new image as a collaborative organization responsive to public concerns. The conflict between these two images resulted in a compromise: consultation.

DF  This started out as an experiment... BC Hydro had never approached operations this way. In fact, I give a couple of individuals in particular a lot of credit for going out on a limb and trying to do this a different way.... So, did BC Hydro think it was an appropriate method? Certainly not all of BC Hydro ... in fact, if I had known the environment and the context both within and outside BC Hydro, I'm not sure I would have suggested it. But ignorance is bliss sometimes.

So within BC Hydro there were some debates as to whether it was appropriate, whether the company should engage in such an intensive consultation process. And the key thing there was the concern with forfeiting decision making. And that's why ... one of the ways to move it forward
internally was to ensure that BC Hydro was responsible for writing the water use plan, that the consultation process was advisory.

A similar tone was set by local participants, who noted that the meetings held at the beginning of the process were the most difficult, but that things improved towards the end of the process.

TCh It started off pretty lumpily, but it ended up very well indeed. Really, everybody came together at the end. At the start I wouldn't have given it a snowball's chance, but it did work out.

or alternatively,

RB ... what started out as, BC Hydro is the enemy, and then closer to the end it turned out more like it was we were working together.

Many of the initial conflicts were described as arising out of the past behaviour of BC Hydro and other government agencies. Other challenges stemmed from the diversity of the group, which was seen as a potential source of conflict. As one participant expressed, "I was surprised it worked because there were so many people from diverse backgrounds and with diverse interest groups" [LB].

While conflict, adversarial relationships, and angry words can be counter productive in negotiating an agreement, some participants also believed that the opportunity for people to express their anger and frustration can actually be a part of process leading to greater trust.

MM If the process allows ... for people to express frustrations, for those frustrations to be dealt with and result in an end agreement that everybody is really happy with, then I think there must have been something right in the process.

On the other hand, those who were expressing their frustrations during the process, such as Tom Cadieux of the ARMC, made it clear that participation in the ASC involved some high personal costs.³

TC I just about totally burned out doing this, it was just too much work. I think that I physically suffered. I don't know if mentally suffered is the right word, I soulishly suffered. I mean I had no joys in life left at all, this was totally consuming to make it happen. I'm glad I'm at the other end of that now, I don't want to go back.

Another participants went further than some of the others who saw both good and bad features of the process. For him,

³ The conflicts that arose at the beginning of the ASC process are discussed in greater detail in section 8.3 on process control and self-design.
GM  The whole process was a complete joke, to be honest. Like I say, everybody got what they wanted out of it, so therefore it worked.

Although he felt that an agreement had been reached on a flow regime that many people were happy with, he was unimpressed by the methodology developed to measure the impacts of the flows on fisheries and recreation.

However, in spite of some very strong critics, the feeling among most of those participants that I interviewed was that the process used to develop the AWUP was a good one. Further, many participants, not only those within BC Hydro, were concerned that my evaluation of the process reflect that, in spite of the problems that they pointed out.

JH  I actually go out on a limb and believe that this will be a tool that people will use more and more. I really think it’s a useful tool. That’s what I learned from being on the committee.

If you asked me that question before I was on the committee, I think I would have said, get a bunch of locals involved against Hydro, and we’re going to have a screaming match and coffee and doughnuts, and nothing ever is going to come out of it. But I actually believe something did come out of this thing, and it wasn’t a bad thing, it was a good thing.... I hope that’s your conclusion too.
7.2.2. Appropriate research methods

As previously noted, because of the decision analysis approach taken, there were strong links made between the decisions and discussions of the ASC, and the information that the committee was using to make those decisions. But while there was general support for each of the research areas, interview participants also raised questions about the methodologies used to collect and analyze information.

7.2.2.1. Fisheries

There was a great deal of controversy about the FFS methodology and results. Many of the committee members felt that, at least in part, this controversy was related to the complexity and uncertainty involved in predicting what the ecological impacts of changing flows would be in comparison with generating power from those same flows.

JH Generating hydro power is a fairly exact science. Protecting a fishery is much less an exact science. And that sometimes, I think, frustrated the Hydro people a little bit, because you could tell they live in world of very mathematical, predictable flows. Even the weather conditions, which are not exact, are far more predictable ... than predicting what fish are going to do.

In spite of the agreement from the “fish stakeholders” (such as the federal and provincial fisheries agencies, BC Hydro and ARMS) to carry out the instream study as described in section 7.1.2.1, it is clear that some committee members had reservations about the study from the beginning. As demonstrated by quotations taken from letters exchanged between ARMS and James Bruce in 1995, the terms of reference for the study were highly contentious at the time (Box 7.5)⁴.

In part, these exchanges illustrate different interpretations of the purpose of the FFS -- whether it should attempt to restore based on conditions before the dam was constructed, or to improve conditions on the river based on its post-impoundment state. As well, it represents different interpretations of Tennant's Method (1976), a rule of thumb method for predicting the impact of diverting water on fish habitat. It also illustrates the adversarial nature of the FFS committee at that point in time⁵.

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⁴ The letters from ARMS were based on a review of the study design by Dr. Bob Vadas (see section 8.5.2)

⁵ Indeed, ARMS began to organize legal action with the Sierra Legal Defense Fund on the instream flow issue in 1995, around the same time as this exchange was taking place (see section 6.2.1.1).
The study boundaries should be expanded to include the reservoir above the Alouette Dam, as well as the Stave River below the diversion outflow (ARMS, 1995a).

Study boundaries should be kept as described in the proposed study plan (Bruce, 1995b).

In regards to the range of flows to be considered in the study "0.28 m$^3$/s to 30% of the mean annual inflow" this range is too low given that Tennant (1976) considered 30% M.A.F. to be a minimum for healthy fish populations (ARMS, 1995a).

We are limited to the capacity of the LLO, which will be used to its fullest extent .... We will now be able to consider flows up to 3.35 m$^3$/s, the upper limit of the LLO at full pool ... as described earlier, it is inappropriate to use Tennant's Montana Method in BC (Bruce, 1995b).

BC Hydro's IFIM-research plans for the Alouette River include flow ranges much too low to provide useful information; the study will be a waste of time because the Montana Method was ignored (ARMS, 1995b).

Since 1993 ... flow out of the LLO has been relatively constant.... As a result, the fauna, flora and sediment distribution of the river has had a chance to adapt to the flow regime and therefore, are in equilibrium with each other and their immediate physical surroundings. This is the ideal setting for conducting the baseline data collection needed to complete the study program (Bruce, 1995b).

Mr. Bruce stresses the use of post-dam conditions as "baseline" conditions, but this does not take into account the habitat and biotic damage already done to the Alouette River because of flow alterations from hydropower operations (ARMS, 1995b).

Members of the fisheries agencies also challenged some of the assumptions of the study, although they were hesitant about pushing BC Hydro too hard. Instead of questioning the study and rejecting it completely, they hoped to be more strategic in their pressuring.

MR I came over from Victoria ... and helped craft together the terms of reference. And what we wanted to do in the terms of reference, at least for the fisheries agencies ... was to develop wide enough terms of reference so that you could incorporate all areas of mitigation, compensation, back to the original discharge regime. So in other words, what we wanted to find out was, what was the habitat capability under natural discharges? Now that certainly wasn't available for all issues, in the fish habitat ... but certainly, the model that was used, weighted usable area, we wanted to push the flows high enough up, so that works may have had to been changed.

This pressure resulted in the boundary of the model being extended beyond the capacity of the low level outlet to discharges of 7.5 m$^3$/s, although actual water releases for the study

Although the legal action was never brought before the courts, the fact that this approach was being considered also highlights the adversarial nature of the FFS committee.
were limited to the capacity of the low level outlet (approximately 3.0 m$^3$/s). Another issue which Marvin Rosenau initially pushed was the inclusion of confidence intervals, to provide some indication of uncertainty. As well, he wanted to ensure that the study was statistically valid—"you had to have a large enough sample size, where you are going to do these cross sections and build a model." [MR].

Another of the boundaries of the study was which species of aquatic animals were to be included in the modelling. Was the purpose of the initiative to restore the Alouette in the image of its past, or to compensate for damage caused by the original construction of the dam by improving conditions in the river in its new state? The study was to assess the habitat changes for coho, pink, and chum salmon, as well as steelhead, sculpins, long nosed dace and crayfish. Chinook salmon, a species which historically had been present in the Alouette, were not included in the terms of reference of the original study. Although members of the fisheries agencies indicated that they were interested in including chinook, only ARMS pursued the issue aggressively.

MR We didn't push the chinook issue too hard, the outside stakeholders, such as ARMS did push it, and we were a little bit equivocal about it because we wanted basically restore what we had right now, rather than bring in sort of quasi-new species.

GC When we were going to identify what species we would study .... I said, include chinook salmon. So oh man, and just almost anger, because they said, look this is going to be complex enough. We're going to have to develop and then inject aquatic use curves for all these various salmon, the ideal curve, and an adaptive curve for those times of year when those fish need the water, and injecting a hypothetical fish that doesn't exist into the river just compounds and muddies the water ... let good hard science deal with what you have in there.

In spite of the interest within ARMS to include species such as chinook salmon in the FFS, given that government agencies did not push the issue, it is not surprising that the species was not included$^6$.

In addition to concerns about the terms and boundaries of the FFS some of the participants, particularly the members of the FFS committee, also commented on the methods used in the instream study. ARMS expressed skepticism about the study methodology based on comments they received from Bob Vadas, who was contracted by

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$^6$ Interestingly, the fisheries agencies became interested after a couple of chinook salmon spawned in the Alouette River following the increase in flows in 1996 (see chapter 10).
the FBMP to review the study methodology. Government agency representatives involved in the FFS tended not to criticize the method directly, but instead focused their criticism on particular aspects of the modeling which they felt were not reflective of reality.

In order to follow this debate, it is important to understand a little about the method on which the FFS was based, Instream Flow Incremental Methodology (IFIM). IFIM was developed by the U.S. Fish and Wildlife Service (Nestler et al. 1982) and has since come to be widely recognized, used and legally prescribed in the United States. It is more sophisticated and complex than Tennant's Method (1976), an approach which was developed out of field experience, but depended more strongly on professional judgement in assessing available fish habitat.

Physical Habitat Simulation (PHABSIM) is a computer modelling system developed as the major tool to apply IFIM to instream management. Two major classes of information are required to carry out this type of modelling, which are:

- **Physical Habitat**: e.g. stream width, water velocity, water depth and substrate size at a given stream flow, measured empirically.
- **Habitat Suitability Curves**: these curves give measured or assumed preferences of a particular fish species for water depth, water velocity and substrate for the species life stage of interest. These curves essentially make the link between the measured physical habitat data and fish habitat.

Generally, the method is applied to a whole stream by breaking the stream into ‘transects’ where physical habitat variables are assumed to be approximately constant (Figure 7.1). A large amount of data is required to perform this kind of modelling.
The physical habitat and suitability curve data is fed into hydraulic and channel models, to obtain a weighted habitat suitability index at different flow levels for each transect, which is multiplied by the transect area and summed to obtain the total usable habitat, often referred to as the weighted usable area (WUA). Macrohabitat variables such as water temperature and water quality are modelled separately, and are used only to determine if previous modelling is valid. That is, if the macrohabitat is suitable, the PHABSIM modelling of the WUA is assumed to be correct, otherwise the WUA is assumed to be zero.

There have been many critics of IFIM since its development, including Cole Shirvell, a scientist at the DFO (1986). Particularly, concerns have been raised about the connection between the WUA obtained from modelling and its connection to the state of a fish stock. For example, Shirvell lists a number of possibly invalid assumptions which the method makes, such as that the microhabitat and macrohabitat are independent, and that microhabitat is a limiting factor. PHABSIM also does not consider the possibility that channel morphology itself can change with flows, and generally does not include seasonal side channels. It also makes no connection to how nutrients change with flow levels, which can have an impact on the carrying capacity of the river for fish.
The Alouette FFS modified the PHABSIM approach. Instead of creating a hydraulic model of the entire river, the transects were selected to be statistically representative of the various types of habitat in the river. This allowed the data to be manipulated statistically, and for confidence intervals to be calculated. As well, instead of using weighted usable area as their fish habitat modeling variable, Weighted Usable Width (WUW) was used.\(^7\)

The results of Alouette FFS modelling showed that optimum habitat for juvenile salmon and non-salmonid species occurred at the lower end of the discharge regime, at 0.5 to 0.75 \(m^3/s\) (Bruce, 1996b). For spawning pink salmon, coho salmon and steelhead trout, optimum habitat occurred between flows of 3 to 4 \(m^3/s\); while for spawning chum salmon, optimum habitat occurred at 1.25 \(m^3/s\) (Bruce, 1996b).

Given the dearth of alternative methods to IFIM (other than more qualitative approaches such as Tennant's Method), it is not surprising that the focus of concern in the FFS shifted from the IFIM approach to specific aspects of the model. In particular, habitat suitability curves, which strongly affect the outcome, were criticized by the DFO and BCMELP representatives. Their concerns were that there was:

- **Inconsistency with curves from other river systems:** “Perhaps the habitat [suitability] curves developed for the Alouette weren't representative and weren't consistent with curves that had been developed for other systems” [SM]

- **Lack of testing of curves, small sample size:** “I wasn't comfortable with the fact that they were using curves that had not been tested for the Alouette .... BC Hydro did empirical measurements, but when there's no fish in the river, empirical measurement don't mean a lot. Essentially, you have to have some sort of, maybe not saturation, but you have to be able to generate a large enough sample size.” [MR]

- **Difficulty in extrapolating measurements at low flows to higher flows:** “There were some obvious problems with some of the suitability curves, resulting from the fact that the flow studies

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\(^7\) The method used is described in more detail in the draft technical reports produced by BC Hydro's technical staff. The river was first divided into a nine “reaches”, sections of a river that are homogeneous in character (Bruce, 1996b). Further, these reaches were divided into habitat units based on river habitat types (pool, riffle or run), resulting in 271 habitat units. From these, 25 sites were randomly selected, with the criteria that the sites selected should reflect the proportional length of each reach, as well as the system wide proportional length of each habitat type. At each of these study sites, a number of transects across the river were decided upon, resulting in a total of 125 transects. Each of these transects was sampled every 0.25 m for the first 1 m from shore, and then every 0.5 m, where depth, location, elevation, average water velocity and substrate information was entered. These measured data, in combination with suitability curves for each fish species, were used to calculate weighted usable width (WUW) for each fish species of concern.
were done under fairly minimum flow conditions. We can extrapolate to a certain point, but beyond that we don't know whether that curve continues to follow the same trend." [SM]

These concerns led to a search through the literature for other suitability curves for some of the fish species, particularly for steelhead.

MR There were data in the American literature ... what I wanted to be able to do was say, these are reasonable curves because of sample size, or geographic similarity.... The fortunate thing was we ended up stumbling on some curves that gave an exceedingly high weighted usable area

Several suitability curves were selected, in particular, those developed by Winter and Wampler (1990), Wampler and Hiss (1991) and Ptolomy (1994)\(^8\) for juvenile steelhead, which resulted in very different trends for WUW than with the curves developed on the Alouette (Bruce, 1996a) (see Figure 7.2). For example, the suitability curves developed by the FFS for the Alouette River indicated that optimum juvenile steelhead habitat occurred on the Alouette at flows of 0.5 to 0.75 m\(^3\)/s, and decreased at higher flows. In contrast, suitability curves developed by Ptolomy (1994) resulted in optimum habitat at flows of approximately 2 m\(^3\)/s; while curves from Winter and Wampler (1990) and Wampler and Hiss (1991) seemed to suggest that a maximum was not reached until beyond the modelling boundary of 7.5 m\(^3\)/s

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\(^8\) Referred to in an untitled report of additional modeling carried out as part of the Alouette FFS, obtained from James Bruce of BC Hydro.
Figure 7.2. South Alouette River Juvenile Steelhead Habitat (WUW) Based on Various Suitability Curves.

Marvin Rosenau, who had pushed for the inclusion of the "other" suitability curves, carefully stated that

MR ... whether those curves are appropriate or not for the Alouette, I can't say for sure, but given some of the post-analysis data I'm comfortable that they gave us a sense of information that we didn't have, to that point.

These new curves suggested that it was possible that optimal habitat for juvenile steelhead would not be reached until well beyond the capacity of the LLO. This same trend had been noted in some of the curves for the spawning stages of most of the salmonids (pink, coho and steelhead), however, members of BC Hydro claimed that because the fish spawn in the fall when runoff from tributaries is high, these were not as great of a concern. Coho, one of the other juvenile salmonids analyzed, tended to have a fairly flat WUW-versus-discharge curve, thus representatives of the fisheries agencies maintained that

MR ... the issue came down to the fact that, well, if we're not affecting coho habitat, in other words that curve is flat, but we're increasing steelhead habitat, then we should be continuing to push that water.

From the perspective of one of Hydro's fisheries biologists, the inclusion of the other suitability curves didn't really add new information. Instead, he saw the other FFS
committee members interpreting the suitability curves based on their institutional biases and beliefs.

JB Suitability curves are the most important determinant of how we define the relationship between habitat and flow. As a result, these curves must be as unbiased as possible and the best way to do that is to construct them from river specific data. Now we did collect some river specific information and developed Alouette River specific curves, these did not fit well with the beliefs of some people on what fish behaviour should be. And because the whole notion of suitability and suitability curves is a bit tenuous, it's quite easy to reject whatever information you do have and replace it with your belief, which tends to reflect more your institutional bias than biological reality.

When I asked if any of the concerns of the fisheries agencies were valid ones, his response was that "because you do not have not enough information doesn't mean that what you do have is useless" [JB]. Instead of simply rejecting any one curve, he suggested that both empirical and literature based curves could be amalgamated together using statistical tools.

JB Well that didn't occur. It was more like I was to do a separate model run with all of the curves, and then pick the one that gave the highest flow. In theory, or at least in my mind, that's not the way you're supposed to do it. You have to agree on what the fish behaviours are first -- without knowing what the consequences are in terms of weighted usable habitat - and then run the model.

Given the disparity between the various curves, as illustrated in Figure 7.2, and the acrimonious debate between BC Hydro, ARMS, DFO and BCMELP representatives, it is not surprising that many of the committee members found the information they were being presented with to be conflicting and complex.

JV ... did it seem credible information, in a lot of areas?

JH I think all of it was credible, I think some of it was conflicting. We were talking about different sciences in some regards.... One of the big impressions coming out of that whole thing was just how complicated a problem it is.

In moving from the debate between technical experts and those able to speak their language and the broader venue of the ASC, the methodological details became somewhat less important. Key factors included the openness of experts and planners to the knowledge of non-experts (section 8.5), the ability of technical experts to communicate their results with ASC members (section 8.4), and the credibility of the institutions involved in the studies (section 9.2).
7.2.2.1.1. Flushing Flows

In addition to the physical habitat modelling that was carried out to link flows with fish habitat, some work was also done related to the use of flushing flows. Like natural floods in an unregulated river, flushing flows are periods of high flows that occur for relatively short periods of time. They have the function of removing fine sediment from the riverbed, which allows oxygen to pass through gravel and reach developing fish eggs and recently spawned juveniles.

As part of the FFS, analysis was carried out by Paul Higgins (1996) of BC Hydro to theoretically determine what flows would be required to flush spawning substrates (< 0.15 m diameter) and rearing substrate (<0.5 m diameter) for salmon and steelhead, and developed recommended flushing flows for both substrates (Table 7.1).

Table 7.1. Recommended and Historical Flushing Flow Assessment

<table>
<thead>
<tr>
<th>Recommended Flushing Flows</th>
<th>Spawning Habitat</th>
<th>Rearing Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>19 - 24 m³/s</td>
<td>32 - 41 m³/s</td>
<td></td>
</tr>
</tbody>
</table>

% of Years That Maximum Discharge Exceeded Recommended Flushing Flows (1972-1992)

- Upper 5 km of River: 50%
- Lower River: 71%

Data from (Higgins, 1996)

Historical analysis of flows over the period 1972-1993 indicated that the bankfull discharge was about 22.5 m³/s (Higgins, 1996) roughly the same level as predicted would flush

9 The recommended flushing flows are based on the average flows (over the 25 FFS study sites along the South Alouette River), that would begin to destabilize the substrate (lower limit) without completely mobilizing it (the upper limit).

10 This calculation is based on a 1.5 year return peak flow (Bruce, 1996c), which was assumed by Bruce to be the bankfull (or channel maintenance) flow in natural, single channel river systems, based on a literature review. This flow is defined as the discharge that carried the most sediment over the longest period of time, thus has the greatest influence on channel structure. However, anecdotal evidence from the November 1995 flood suggests that bankfull discharge may be closer to 55 m³/s (Bruce, 1996c). This is consistent with the fact that floods of a longer return period tend to be proportionally larger on the Alouette River than on the adjacent, and unregulated North Alouette River. For example, the ratio between the 5 year and 1.5 year discharges on the North Alouette River is approximately 2, whereas the same ratio on the Alouette River is between 3 and 7 (Bruce, 1996c). This is related to the fact that peak flows on the Alouette River with a return period of less
spawning habitat, based on a peak flow with a 1.5 year return period (Higgins, 1996). Likewise, the mean annual flood for the Alouette River for the period was 42.7 m$^3$/s, roughly the same level as the recommended flows for flushing rearing habitat, and had a return period of 2.5 years. The duration of bankfull and average flood discharges for the Alouette River was determined to be 3 days and 2 days respectively (Higgins, 1996).

Based on this historical analysis, as well as the life history of the various species of salmon that spawn and rear in the river, Higgins (1996) recommended that a spawning discharge of 19 m$^3$/s be implemented during even years during October 15 to November 15, for a duration of no less than three days. For maintaining rearing habitat, he recommended a discharge of 32 m$^3$/s during the period of September 15 to November 15, once every three years for a duration of no less than 2 days. These recommended flows are almost identical to historical flushing flows on the river, both in their magnitude, frequency and duration.

Given that the recommended flushing flows correspond to historical conditions in the river for the past twenty years, it is hardly surprising that the cost of implementing flushing flows was low, at $2 - 75 k per year, depending on the timing of the flushing flows (Gregory and McDaniels, 1996). Thus although the ASC agreement prescribed flushing flows explicitly, it did not significantly change the operation of those facilities unless flushing flows were implemented on a fixed schedule basis (see section 10.1).

Analysis of the sediments in the river after the 1995 flood, in which flows exceeded 120 m$^3$/s for at least one day and exceeded the recommended flushing flows for 19 days did not result in complete flushing of fine sediment from the lower reaches of the river (Higgins, 1996). Thus it may be impossible for these reaches to be completely flushed without causing major flood damage to downstream residents.

In my interviews with participants, very few brought up the subject of flushing flow assessments. Perhaps this was because it was fairly technical, or because there were small economic stakes. In any case, it was generally viewed as an important part of the agreement by those who commented on it, but not a subject of much controversy or discussion.
one of the clear winners that was discussed very early on in the process was flushing flows. Well for something like that, it wasn't a big deal to us if the eventual timing suggested a flushing flow of twenty-seven hours or a flushing flow of forty-three hours. It's an important question, and that's something that the biologists need to think about. But for us, all we needed to know was if we have a flushing flow of ... a one or two day duration, or three or four day duration, is it going to significantly affect fish production, at a very low cost ... in terms of forfeited power production. And if so, do it, and worry later ... as you gather more information.

Some participants also added their own local observations in assessing flushing flows, and noted that despite the property damage caused by the 1995 flood, the flood had improved stream habitat significantly.

LB I understand from Geoff, who's knows more about the river from habitat point of view than I do, is that, after we had the '95 flood, the river was much better in '96 than it had been in years.

One concern related to flushing flows was that they could potentially result in downstream flooding. A previous study estimated that the threshold for flows that would begin to result in flooding on the properties of downstream residents was $90 \text{ m}^3/\text{s}$, thus BC Hydro has adopted a maximum target spill release of $60 \text{ m}^3/\text{s}$ at the dam (Higgins, 1996). The recommended flushing flows were well below this level; however, some participants were uncertain about what discharges would cause damage to property. Given the recent flooding, it is understandable that local residents would be concerned about the possibility that flushing flows would flush their houses out as well.

TCh This is another curious thing ... nobody'd really studied how much water is too much water ... Geoff was involved, and the fisheries were involved and Hydro was involved to try and arrive at a number. And as I say, the number that they finally arrived at was about 700 cfs [20 m$^3$/s], approximately the flushing flow levels] could not do any damage.
7.2.2.2. Recreation

The intent of the recreation study was to predict the effects of several flow regimes on recreational values in the river, and the impacts of different lake elevations on recreational values there. UMA Engineering suggested that there are four methods available, based on literature from the U.S.\footnote{They cite U.S. National Parks Service. 1993. Instream Flows for Recreation: A Handbook on Concepts and Research Methods.}:

- Historic Use Method
- Professional Judgement
- User Survey
- Prediction Based Modelling Methods (e.g. Single Transect Method, Predicted Flow) (UMA Engineering Ltd. 1996b)

Because of limited time and funding, UMA’s recreational analysis was based on the first three methods. In order to apply these methods to Alouette Lake, BC Parks staff were relied on heavily to provide information on the impacts. Based on my interviews, there did not seem to be a great deal of discussion in the ASC about the methods used to measure the reservoir impacts.

On the other hand, the studies carried out to determine the impact of various flow regimes on recreation in the river provoked much more controversy. UMA tried to estimate the impacts of flows on “passive streamside recreation” (such as use of the parks along the river), “passive instream activities” (canoeing, swimming, angling, tubing, equestrian use) and what they called “active recreation activities”, by which they meant activities that require substantial flows, such as kayaking. Table 7.2 shows the flows that they identified to be optimal for these various activities, based mainly on interviews with people in the community.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Identified Flows</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Passive Stream Side Recreation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipal Parks along the river.</td>
<td>2.0 m³/s to bankfull conditions.</td>
<td>Minimum flows aesthetically diminish enjoyment of the resource as algae blooms appear and odour problems arise; high flows can present a potential safety hazard for users</td>
</tr>
<tr>
<td><strong>Passive Instream Activities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canoeing</td>
<td>2.0 - 3.0 m³/s.</td>
<td>Safety issues are a significant concern as the river system is dynamic</td>
</tr>
<tr>
<td>Tubing</td>
<td>2.0 - 3.0 m³/s.</td>
<td>Tubing at various locations is most popular at these flows.</td>
</tr>
<tr>
<td>Tubing</td>
<td>2.0 - 3.0 m³/s.</td>
<td>Equestrian trail crossings are located along the river corridor.</td>
</tr>
<tr>
<td>Equestrian Use</td>
<td>2.8 - 5.7 m³/s.</td>
<td>Increased flows impact safety.</td>
</tr>
<tr>
<td>Angling</td>
<td>2.3 - 3.0 m³/s.</td>
<td>Interim Flow Agreement of 0.6 m³/s was beneficial to angler use of the river. Subjective analysis indicates flows 2.3 - 3.0 m³/s would be beneficial to the anglers and would maximize “fishability”. Angler visitation is optimized at flows in the range of 3.0 m³/s and above. Flushing flows considered an effective means of removing silt from the river and establishing habitat.</td>
</tr>
<tr>
<td><strong>Active Recreation Activities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Activities that require substantial flows to support the activity)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kayaking</td>
<td>28 - 57 m³/s.</td>
<td>Active recreational activities along river are linked to periods of high flows. Implementation of a communications plan between BC Hydro and the potential users is supported.</td>
</tr>
</tbody>
</table>

Notes: The optimal flows have been determined through discussions with various local representatives who either participate in activities or are in contact with the various users. The flows represent qualitative assessments based on local and professional judgement.

Sources:
1. Ridge Meadows Parks and Recreation
2. Alouette River Management Society, Stakeholder Committee discussions.
3. Alouette River Management Society, Stakeholder Committee discussions.
5. Alouette River Management Society.

Adapted from: (UMA Engineering Ltd. 1996b)

Those within municipal and provincial parks agencies tended to be fairly supportive of UMA study methods, and indicated that the studies brought useful information to the table. For example, a member of BCMELP-Parks described his interaction with UMA Engineering in a positive light, in terms of the way in which they consulted his agency.
I talked with the fellow from UMA on the phone a couple of times, outside the room, he needed information. I had a good chance to make my case, I felt that it was realistic.

Likewise, the representative from BCMEI was also generally supportive of the recreation studies. She suggested that although the work was perhaps not as "technical" as power or fisheries studies tend to be. However, the information gathered through public surveys and interviews provided valuable data. In her mind, it showed that consistent flows, rather than simply more water was perhaps better from a recreational perspective.

... they also tried to say connect flow levels with recreational values.

That's a valid approach. However, until you understand the links and what people value about recreation you cannot determine what is an appropriate flow or reservoir level. The process allowed us to see that higher water is not necessarily better; part of the problem was actually fluctuating water levels.

Within BC Hydro, the studies were judged to be fairly important, although secondary to the fisheries information. A manager of Power Facilities suggested that,

[The recreation study] brought information that was important, but there wasn’t sufficient rigour associated with the recreation analysis that it altered any of the decisions.

Likewise, one of BC Hydro's members on the ASC planning team gave a mixed review of the recreation study.

After we identified the objectives, we thought there needs to be some information on recreation, which we tried to gather. It was not comprehensive enough, but there was some information that was gathered there.

On the other hand, one of the scientists involved in the FFS suggested that in spite of the fact that greater resources were spent studying fisheries than recreation, "we've still got roughly the same level of information" because of the static nature of recreation sites.

Many of those within the fisheries agencies and ARMS were not as supportive of the methods used in the recreation studies. In part, this was related to the lack of rigour as described by one the BC Hydro representatives. In addition, the BCMELP representative felt that UMA did little to go beyond the simple recognition of fishing as a recreational activity and characterize the connection between flows and fishing recreation.

How about the recreation studies that were done by UMA?

Not happy with those.... I tried to figure out a functional relationship between angler days and discharge, or catchability and discharge, and I don't think they ever considered that. From the end of September to the end of April, angler days are the biggest recreational component to that river.
An ARMS representative took the criticism further, and indicated that he thought UMA’s methods for assessing flows in the river were invalid. In particular, he saw the public surveys UMA carried out to link flows in the river with recreational values as absurd.

GC [UMA] said that they had talked to people along the river in the summertime, and polled them as to what flows they thought would be the ideal recreational flows. They came to the conclusion that it would be about 90 to 105 cfs [2.5 - 3.0 m\(^3\)/s] — it was flimflam. Did they ask anybody along the river what 105 cfs [3.0 m\(^3\)/s] looks like or 150 [4.3 m\(^3\)/s]? And except for the unique individual who knows how to put a chip in the water and measure the time, distance, width and depth, they don’t know. So that was a complete charade, arriving at recreational flows. We accepted a level based on the fisheries rather than on the recreation.

In fact, analysis carried out by Marvin Rosenau on the relationship between the number of anglers on the river and the river discharge indicated that the number of people angling would probably increase until well above 3.0 m\(^3\)/s. He also suggested from his own experience as an angler that higher flows on the Alouette would result in better angling.

MR I did an analysis that looked at the functional relationship between catchability and discharge, and you get sort of a dome shaped curve or a flat shaped curve. The reality is, if you want good steelhead angling, you probably need 300 or 400 cfs [8.5 - 11.3 m\(^3\)/s] in order to even get into some decent steelhead angling

I’ve angled for steelhead quite a lot: I angled 54 days last year, 265 hours... so I’ve got a sense of what constitutes good discharges under a whole variety of flow conditions in different rivers. I have fished the Alouette, not very much, but know that more water for the most part it good water. Within the flows that we normally see, there just isn’t enough water there to provide good angling.

One further area in which the study was seen to be lacking was the upper boundary it placed on possible flows, based on the risk to public safety. Almost all of the participants agreed that there was some increase in risk to public safety. Those within the municipal parks agency recognized this as a concern, but believed that it could be adequately addressed through public education and hazard warnings.

MM The area where we get the greatest ... negative impact, is simply that it is a little more of a dangerous place than it was when it was with a lot lower water levels. To me, that’s a fair trade-off, we simply have to come up with ways to make people understand that ... and even then, I mean, this river is not the Nahani River.

Many participants, particularly those from the fisheries agencies and ARMS were skeptical of the ability of UMA to determine the relationship between flows and safety. A representative from ARMS stated

GC I don’t believe that anybody could scientifically come forward and say a certain level of water is safe, and a certain level of water isn't safe.... There is a level ... where there would probably be an
increase in risk. This is due to the fact that people would be able to get access to their normal pools without being subject to higher velocities, but then would possibly encounter higher velocities in the tailouts of the pools that they are swimming in, which could sweep them out. But I’m not sure that we were pushing that envelope....

UMA was trying to lead us to believe that anything over 150 cfs [4.2 m$^3$/s] was dangerous. I didn't accept that then and I don't buy it now.... My own brother drowned when he was nine years old, in a small creek in our neighbourhood, so I think that I was very well versed to be able to speak to that.

In essence, the recreation studies and the methods used to develop them were widely seen as either incomplete or not sufficiently rigorous by many of the participants. Because of this, they did not have much influence on the decisions the group had to make. For some participants, particularly those in the provincial and municipal parks agencies, the recreation studies were important. Others were extremely critical of the methods used to develop the study. Many of the participants simply felt that the studies didn’t really contribute critically to the decisions of the stakeholder committee on flows, including some of the Parks representatives.

MM We very much deferred to the environmental aspect and said, listen, a healthy river in the long run is going to be a lot more valuable as a recreational resource in the community than keeping the flows lower so that people can paddle in the water.

SM I really don't think the recreational studies added much information to the process.... The consultants made statements to the effect that what was good for fish was good for recreation.... Other than the fact that that kind of a statement is made, I don't know how much that work really contributed.

### 7.2.2.3. Flood Control

The flood hazard modeling which was done for the ASC was focused on predicting the probability of a large flood on the South Alouette River, based on different operations of the adit, low level outlet, gate and other parts of the Alouette hydroelectric facilities. The members of the ASC planning team emphasised that the work that had been done on flood hazard modelling, which was done internally within BC Hydro, was “driven by the consultation process. At that point we had decided on objectives, how we wanted to measure them, and then we went out and got the information.” [DF] The modeling used the flood of November 1995 as a reference point, which had an average daily flow of 91 m$^3$/s
at Alouette Dam\textsuperscript{12} (Gregory and McDaniels, 1996). It compared the probability of such a flood occurring under existing operating rules, as well as more protective operating rules. Under current operating rules, such a flood occurs once every twelve years (referred to as a 1-in-12 year return period). The committee discussed the relative merits of more protective rules, such as 1-in-32 or 1-in-50 year levels of protection (Gregory and McDaniels, 1996). It is unclear if a spectrum of scenarios was presented to the group, which summarized flood control scenarios with their associated costs, as the table which summarizes the flood protection alternatives in the consultant's report contains the footnote that "Above estimates were not presented to/used in ASC discussions; rather they were developed in support of further efforts by some ASC members to develop explicit flood protection rules." (Gregory and McDaniels, 1996).

An additional source of information on flood control was a report prepared for BC Hydro by Denis Russell (1996), a UBC Civil Engineering professor. It was written in preparation for possible litigation following the 1995 flood\textsuperscript{13}. Russell's report was intended to review what happened during the 1995 flood, and why. He describes the storm events leading up to the flood and the response made by BC Hydro's engineers in some detail. He concludes that the flooding was due to the cumulative high levels of rainfall from a series of storms. These high inflows were alleviated to some extent by opening the adit gate and releasing water at the dam. The releases at the dam were not as high as they could have been because of the fear of "being sued by the federal Department of Fisheries and Oceans, should the flow releases cause damage to fish habitat in the river" (ibid.). Denis Russell made a number of recommendations including:

- The adoption of a formal set of operating rules, especially for the rainy October to March season, rather than relying on short term inflow forecasts.
- The creation of a more effective flood warning/communication system, which should be "exercised" every year or two.
- The creation of an hourly flow forecasting system rather than daily, to improve response when flood conditions do occur.

\textsuperscript{12} The peak hourly flows of the November 1995 flood were considerably higher, at approximately 185 m\textsuperscript{3}/s (Russell, 1996).

\textsuperscript{13} That litigation did not move forward, although there was some talk about one of the riparian residents organizing a class action suit two years after the flood as I carried out my interviews in the winter of 1997 and spring of 1998.
The work that the ASC did in setting operating rules for the Alouette facilities to improve flood protection falls under Denis Russell’s first objective. One of the facilitators argued that this approach was the best to take, and was the approach taken “on reservoir operations throughout the United States” [TM]. He also argued that it made sense given the relatively high rainfall in the area, and limited reservoir storage. The facilitators steered the discussion away from Denis Russell’s third recommendation related to the creation of a more reliable system for short term flood forecasting. To be fair, this work was fairly technical and was perhaps more suitably carried out internally within BC Hydro.

TM [Some members] wanted modelling approaches that basically involved forecasting of events, or the ability to use rainfall forecasts to decide what to do ... And we reminded people that really, what matters in controlling a flood is not what you do once you discover it’s going to rain, it’s what you did two weeks ago.

Those participants that did comment on the flood modeling seemed generally supportive of the rule curve approach. For example, Geoff Clayton felt that the use of a rule curve not only got around the issue of having hindsight regrets, but avoided subjective decisions being made on flood control within BC Hydro. He also believed the flood control modelling was valuable because it illustrated to BC Hydro that flood control was less expensive than they realized.

GC I had found that supervisors and managers were making subjective decisions on flood control ... More sophisticated utilities like Bonneville Power Commission have had rule curves for years, but BC Hydro was very reluctant to give up their autonomy of management. The biggest factor was that the public looked at the flood of ‘95 with hindsight, and they would say, if you had done this, this, and this, the flooding would not have occurred. But you can’t use hindsight, we could spill water and then find that we don’t have the expected inflow, it just wouldn’t be prudent. What helped was that BC Hydro developed a software model, ran it for 41 years, and injected scenarios. Even they didn’t realize they were losing money because of the spills they were making every 12 years. In other words, if you increase the flood protection by a factor of about 3 there wasn’t a 3 times cost factor to Hydro.

Interview participants did not make extensive comments on the flood control modelling methodology itself. Those that did were generally positive, although one person believed that it would have useful to have an external review of the model by an independent hydrologist (see section 9.2). This lack of discussion may be related to the fact that flood protection was discussed in separate meetings with the DMR, which resulted in an agreement on a rule based level that was tabled at the ASC, and agreed to by consensus without a great deal of discussion (see section 8.5.2.3). It may also be related to the fact that some ASC members were uncomfortable with explicitly specifying frequencies for
flood events during the committee's discussions (Gregory and McDaniels, 1996), and thus may not have been interested in discussing the flood modelling during our interviews.

Some objections were raised to Denis Russell's report by one participant, which she did not wish to describe in detail, beyond stating that the report was biased towards BC Hydro.

LB  Denis Russell did a report for BC Hydro on the flood, I wasn't very happy with some of the things that Denis said. Especially after we co-operated with him. Since Denis did the report for Hydro, it could be expected that his bias was to BC Hydro.

The flood control information was being developed at the same time as work was being done to organize a flood communication system by local resident Tom Charters, with the support of BC Hydro and Maple Ridge. This system was designed to fan-out warning information to all residents riparian to the Alouette River, in order to quickly advise them of the possibility of flooding (see Appendix D). Some flood hazard mapping had been carried out by BC Hydro to predict which areas would be flooded by various discharge levels at the dam. Thus the work of ASC on flood control was only part of a much larger flood hazard management picture.

7.2.2.4. Legal Issues

On the surface, legal information on the Alouette system was fairly straightforward. BC Hydro had a number of water licences to generate power, which gave it certain rights to water. The AWUP process was reviewing the rights implied by those licences. On the other hand, the planning team was reticent to get into the discussion of legal rights too deeply, for fear that it would degenerate into a debate in which only lawyers could participate. In contrast, there were concerns from stakeholders about BC Hydro's compliance with its licences, and about the legal context within which they were being asked to work.

BC Hydro's water licences on the Alouette River are described below in Table 7.3. It has licences for 28.3 m³/s which it has held ever since taking over the Alouette facilities in 1962 from the BC Electric Railway Company. The licences are for more than 100% of the average annual flows as recorded in the river, which are estimated at 21 m³/s (BC Hydro, 1994c). In 1995, BC Hydro applied for a licence (Z110002) for an additional 28.3 m³/s in order to be able to divert water more quickly during periods of high inflow. This was to provide flood protection downstream of the Alouette Dam (BC Hydro, 1996), although a proportion could also be used to generate electricity given the larger capacity generators
being installed in the upgrade of the Stave Falls powerplant. At around the same time, BC Hydro applied to have the expiry date removed from the one older licence which was not in perpetuity (F007635), around the same time as the Stave Falls redevelopment occurred.  

Table 7.3. BC Hydro’s Water Licences on the Alouette River

<table>
<thead>
<tr>
<th>Licence Number</th>
<th>Use</th>
<th>Quantity (m³/s)</th>
<th>Priority Date</th>
<th>Expiry Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z110002*</td>
<td>Power - General</td>
<td>28.3</td>
<td>1995/07/27</td>
<td>Held in perpetuity</td>
</tr>
<tr>
<td>F007147</td>
<td>Power - General</td>
<td>19.8</td>
<td>1909/09/09</td>
<td>Held in perpetuity</td>
</tr>
<tr>
<td>F007635</td>
<td>Power - General</td>
<td>8.5</td>
<td>1929/09/04</td>
<td>2018**</td>
</tr>
<tr>
<td>F007148</td>
<td>Power - Storage</td>
<td>1.8 X 10⁸ m³</td>
<td>1909/09/09</td>
<td>Held in perpetuity</td>
</tr>
</tbody>
</table>

* Application pending  
** Application pending to remove expiry date.

Sources: (BCMELP, 1998; BC Hydro, 1996)

Pre-1995, the dam operators would often divert up to 76.6 m³/s during periods of high inflow (Ward and Yassien, 1996b), twice the licensed amount. In addition, because the storage licences were initially written as per year rather than total storage, there was some potential non-compliance due to the fact that the reservoir was filled more than once a year. This non-compliance issue, as well as the previously mentioned water licence applications were used to advantage by ARMS and others to raise awareness about the issue of flows in the Alouette River and influence government agencies to bring about a review like the AWUP (see sections 6.1.3.1 and 6.2.1.1).

The issue of licences was handled in the AWUP process by emphasising that it was an exercise in intrinsic water management, in other words, that decisions should be made on the assumption that there are no water licences.

DF When the whole issue of licences came up in the Alouette process, we basically said: “Assume there are no licences. How do we want to manage the water?” And that’s how that process was handled. It’s a water management issue, it’s not a property rights issue.... Property rights would only come up in terms of compensation for BC Hydro and the cost to the provincial government. The whole water use planning exercise is one in intrinsic water management, it’s not one in terms of property rights. I actually think that was one of the strengths of the Alouette process.

14 The original terms of licence 7635 were for fifty years from December 31st, 1928, based on the water licence granted in 1930. This was extended in 1970 for an additional 40 years on October 6th, 1970, in an order issued by the then comptroller of water rights A.K. Sutherland. The justification took only one sentence -- “Being satisfied that no person’s rights will be injuriously affected I hereby amend clause (j) of the said licence ...”. 

161
As was previously noted (section 7.1.1), one participant noted that there was a lack of clarity about how the Alouette WUP fit into the larger context of water law and licensing. That information was made available later in the process when Richard Penner of the BCMELP-Water Management Program made a presentation to the group. Nonetheless, it did create confusion for some participants in the initial stages of the process.

From the perspective of another participant, the legal framework for water management tended to restrict the potential solutions for adaptive management of the resource, although they were able to come up with an arrangement that worked in the end. It began when he made a suggestion that ongoing flexibility could be achieved through the use of two water licences.

TC I'm a global person, I'm the guy that looks at something and says, we need two water licenses, we want one for the Alouette River, with a heritage clause in it ... we want a water license for say 300 cfs [8.5 m³/s] of water, and you can have the rest. And then what you can do is actually use the water we're not using off our license, so that we can manage our river with an adaptive management process. So that if someday a hundred years down the road, through the science, through adaptive management [we find] that we need more than what's coming out the spillway, all we need to do is find a way to get it to us.

And that just unravelled, you would not believe how that unravelled them. They brought Penner out just to deal with that, how that was impractical. I think that's what led us to having that management team with the four levels of government, plus BC Hydro.

The arrangement that was finally arrived at, the Alouette Management Committee, was given an ongoing role in managing water on the Alouette River within the agreement reached by the stakeholder committee (see section 10.2).

7.2.2.5. Economics

Economic information played a key role in the activities of the ASC, although based on the resources used to develop and communicate information it would seem relatively unimportant. There was no team of researchers or consultant hired to study the economic implications of the AWUP. Further, of the five objectives of the process (see section 7.1.1), only the objective of minimizing cost increases to the provincial electric supply was monetized. In spite of this apparent marginality, economic valuation of power resources played a key role in setting boundaries on what was possible in the final flow agreement.

There were a number of different perspectives on how economics should be used within the ASC members. On the one hand, the members of the team planning the ASC process
personally supported the use of a mix of monetary and non-monetary systems of measuring the impacts of different scenarios, although they did put the decision to the ASC. This approach has been suggested for a number of years by the BC Crown Corporations Secretariat (BCCCS) (1993), the agency that crown corporations such as BC Hydro report to. In addition to the blessing of the BCCCS, the use of non-economic measures was also supported by time limitations. As well, many of the values for water would not be captured through a straight economic approach.

DF Personally I believe in a mix of dollars and non-dollars, that's my own personal bent. I'm not happy with everything being put into dollar values.... In terms of the time-frame involved here, I think it was pretty much the only choice.... I was actually quite happy that the consultants suggested that they put it to the group to decide the appropriate method.

On the other hand, some of those within BC Hydro remained somewhat skeptical of the evaluation of alternative operations without full monetization.

DD One of the difficulties is it's easy to determine what... the monetary value of lost generation is. It's more difficult to put monetary values on the other factors that were part of the decision. So that led to the process of looking at trade-offs, and I'm not sure that I'm still comfortable not trying to find a way of monetizing everything, but in the absence of that, I think the trade-off analysis approach worked reasonably well.

JV And that was a group decision, or generally a consensus not to put values on them?

DD Yes. Nobody wanted to monetize things except the BC Hydro representatives on the committee.

JV And maybe Greg Mallette?

DD No.... It's hard to put a dollar value on a salmon in the Alouette River, while in fact -- yes you're right, Greg Mallette, that is one of his specialities, but if you looked at it from a solely monetary perspective, power generation wins hands down.

The perspective that the value of power generation would far exceed other values for water from an economic perspective substantiates the fears of those within the local community about the use of economics to value environmental resources. For example, Geoff Clayton described the concern he felt when he found out that economics would potentially play a role in the FFS.

GC BC Hydro said that economics would play a role here, which threw up a red flag for me right away. I could see the scales being balanced like the old goldminer's scales with fish on one side, and power on the other. Everything would be skewed in the direction [of power], because it's very easy to come up with a number ... [for the value of power production], but it's extremely difficult to come up with a spiritual value, just a value of a clean, free flowing river that is healthy to swim in, to picnic alongside, to make you feel good about when you come home from work at night to you realize that you're living in an area that has the birds, the trees, the fish.
When it came time for the ASC to decide about the role that economics would play in the decisions they were making, the consultants described three different approaches to evaluate trade-offs. These were:

1. A multi-attribute approach that permits trade-offs across objectives, as measured in scales that make sense, but are not necessarily dollars.

2. A monetary approach that permits trade-offs in dollar units. Involves the translation of measures not naturally thought about in dollar terms into dollars (e.g. using travel cost methods, hedonic pricing methods, contingent valuation methods)

3. A threshold approach that compares pros and cons to determine whether it is reasonable to believe that the benefits of an option [far] exceed its costs.

(Gregory and McDaniels, 1996)

In fact, for the representatives of ARMS and other local organizations, this proved to be a pivotal point in building trust in the ASC process.

GC Much to my amazement, and I would suspect everybody around the table that worked for BC Hydro, [the facilitator] said, and I would suggest of all the options, the [third] option is the one that, although I'm just the facilitator here, I think that that's the most viable option for you to look at. And BC Hydro was quiet. And we all said, well that's certainly the point of view of all the community stakeholders, that's why they're here.... I think that meeting was pivotal, because that to me was where the trust built up. I don't think BC Hydro understood the turmoil on our side, that we were going to be poleaxed by this monetary system.... So the very next meeting, it was a different atmosphere. [Emphasis added]

Although this was the general choice of the group, there was also a dissenting minority. Greg Mallette of the FBMP, a resource economist by training, argued that the economic benefits for the non-power uses of the water were not being quantified, which created the perception that they were worth less than the lost value of power.

GM I believe that the economic benefits were greater, in terms of recreation, fishing and human use, than the losses in power, and they refused to quantify that. And one of the Hydro people, who actually has expertise in non-market valuation, never offered their expertise at the table because they work for BC Hydro.... Hydro had continued to say, we're losing three or four hundred thousand dollars a year, when realistically, I believe that the non-market values were worth far more that the power losses.

In fact, the concerns of people like Greg Mallette and Marvin Rosenau had motivated ARMS members to do some economic analysis of their own, previous to the ASC process, trying to draw a correlation between property values and location near the river.

GC ... we got listings of all real estate along the river, and then we went through a linear regression analysis on values on river front as opposed to off river front. And, you could definitely show a correlation that the river increased value.
They also began to look into some of the more comprehensive studies in the US on recreational-use days. While such analysis did not form part of the official information drawn on by the ASC, it was seen by some members of the committee as a piece of information which did help convince other committee members of the value of water in the river.

Those on the planning team of the ASC tried to bridge between the concerns of the majority who wanted to do a mixture of economic and non-economic valuation, and others who wanted to do more extensive economic valuation.

TM We made the point that doing the third approach was basically a pre-cursor to doing either of the other ones in a responsible way anyway. So, why not try the third, and see if we can get somewhere with it, and if not, we can then move on to one of the other approaches if it’s deemed appropriate.

Greg Mallette did not see things that way, and suggested that the multiple-account option was biased and benefited the consultants personally.

GM [The consultants] developed some multiple account criteria, which I think as a professional ... how would I say this, I would not endorse it, how’s that. He pushed forward his own methodology instead of doing one that I think would be more broadly acceptable, like a contingent valuation survey. Instead of us doing a balanced set of analysis, we just went for what would benefit him personally, and what would benefit the utility.

It does not appear that many of the other participants were as critical of the multiple-account approach as Greg Mallette, although as previously mentioned, some of those in BC Hydro did prefer some sort of monetization as well. While there may have been general support for the approach, there were a few concerns among the participants who were generally supportive of the mix of economic and non-economic valuation.

One of the concerns which was explored in the interviews was whether or not this approach was seen to be devaluing non-power values. Those who were planning and facilitating the process did not see that to be the case.

JV Was there ever a sense that because monetization of some of the other values wasn’t done that, that somehow made them less valuable?

DF Yeah, I heard that from a couple of people.... and I would be interested to know if people felt that happened in the end. Because that is the standard fear, that something’s in dollars and something else isn’t, and the dollars are going to get weighted more heavily. And in some cases that’s a very legitimate fear. I don’t think it biased the results in this particular case, and in general, I believe that concern can be managed by choice of technique and presentation, as well as good facilitation.
Many local participants, like Geoff Clayton, felt that the passion and energy of the
community had demonstrated the value of the water for fisheries was much more than the
value of lost generation. Other participants did have some concerns about the use of a mix
of economic and non-economic valuation. For example, a representative of the DMR
suggested that while it was probably the best decision for the group, there were other
economic values that he had to keep in mind, such as the cost of flood damage.

JH  I could not keep the potential damage of a flood, in terms of dollars, ... out of my mind. I was
obligated to the ratepayers of this municipality, and especially the people on the river, to make
sure that I kept that in mind.

Lynne Baxter, another DMR representative agreed that they had developed a dollar value
for flood damage, but that it did not capture all of the human costs involved.

LB  We did come up with is a dollar value for the flooding related to property damage, etc. This did
not include the human cost that is really difficult to put a dollar value on. That is why we didn’t
set a dollar value for flooding.

She also suggested that the facilitators needed reminding that those objectives without
dollar values were also important.

LB  When [the facilitator] started to imply that the dollar values of power were the governing
economic factor, I reminded him that there were other factors the we decided to not to put a dollar
value on that equally important.

Similarly, many participants recognized the difficulty of monetizing the value of fish habitat,
and recreation.

MR  ... monetization of habitat, or monetization of the fish produced by the habitat was not
appropriate.

JH  ... we can’t put a value on the people that will sports fish the river.

LB  Prices can be established for hydroelectric power...the value of the fishery can be estimated
within a reasonable range. But can a dollar value be estimated for the recreational use? Can a
dollar value be placed on human suffering during and after a flood? It is difficult to place dollar
values on recreation, human suffering and other similar values.

At the same time, those in DFO and BCMELP made the point that releasing more water
could be much less expensive than other habitat restoration methods.

MR  Hydro said ... the inflection is before we get to full pipe ... we only get an incremental increase of
10% if we go past 70 [cfs, or 2.0 m³/s], what’s 10% or what’s 5%. And the response to that was,
well if it’s 10%, if that’s what the number was, is still 2 point whatever hectares. Try to produce
2 point whatever hectares of stream habitat in the lower mainland. That’s an incredibly costly
venture; why are we not taking the bit of money that you’re going to lose for power generation
and turning it into stream fish habitat.
Although they did not feel that traditional economic approaches would fairly value the non-power benefits of the Alouette River, members of ARMS also made use of economic concepts to describe the environmental impact of the flow regime in the river on their community.

GC What we had to do in the 60's was to educate the public as to what their losses were. That the price they were paying for their electricity when they turned on their light was not the same price that the people in West Vancouver and North Vancouver paid. They received electricity but didn't lose a whole viable environmental system. Even though we both got our electricity at the same price, we paid a much higher price, in terms of the footprint on our environment.

While placing an economic value on environmental resources was seen as difficult, a few people suggested that the values placed on power production were also problematic. At the same time, participants were often ambivalent about the economic valuation of power and doubted their ability to question the information they were given, especially because Hydro was the one to be affected by the cost.

GL ... it was a hard one to call, as far as how much water they were really losing that wouldn't have gone over the top of the dam anyways

JV So they had a figure for how much power they were losing, but maybe it was a little bit uncertain.

GL I'm not the one to say.

JV But I mean from your perspective...

GL From my perspective, there was a bit of a grey area there, yes.... The one party that had anything to lose was Hydro. And when they gave us figures, who am I to say.

GM ... there was no way of verifying the Hydro cost numbers ... because power has different values at different time of year and all the rest.

TCh [The WUP] also cost the BC Hydro 450, 000 or 500, 000 bucks a years.

JV Yes, so they claim.

TCh Or they claim that, yes, and you can make numbers mean anything. But they obviously had full use [of that water].

There was also uncertainly about what the power was being used for -- whether it was for domestic consumption or export -- which affected how power values were interpreted.

SM The stakeholders had some concerns with respect to the dollar values that were being placed on power generation, and the priority that should be placed on power values. For example, was the power being generated essential for British Columbians, or was it just augmenting the grid and being sold to the United States?

In summary, there was general agreement about the multiple account approach taken, with one strong critic and several others with reservations. For local participants who felt that economic valuation of environmental resources did not capture the full value of those
resources, the choice was pivotal in building trust in the process. On the other hand, a couple of participants strongly disagreed and felt that more economic valuation would have been appropriate.

### 7.3. Summary

Although some participants raised questions about the wider implications of the AWUP process, in terms of how it will be integrated with other WUPs, most were highly supportive of the objectives of the process. The objectives of the technical studies were also strongly linked with the process objectives.

There was considerable discussion about the relative merits of the methodologies for both the process and technical studies. On the process side, most people felt that the Alouette process was an appropriate and useful way to involve stakeholders. Some participants emphasised that the process was costly at a personal level, and that there were instances of unnecessary frustration and conflict. A few participants were more critical of the process, one to the point that he saw few, if any, redeeming qualities in it.

A number of interview participants had a keen interest in the methodologies of the technical studies. Other participants did not have the same level of interest, but commented at a more general level. Table 7.4 summarizes the perceived quality of the various technical studies, from the perspective of both the technically and non-technically minded.
### Table 7.4. Summary of Technical Studies/Information

<table>
<thead>
<tr>
<th>Studies Done</th>
<th>Fish Flow Study</th>
<th>Recreation Study</th>
<th>Flood Control</th>
<th>Legal Issues</th>
<th>Economics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Internal BC Hydro reports (Bruce, 1995a, 1996a, 1996b, 1996c, 1996d; Higgins, 1996; Ramsey and Westcott, 1995), with input from FFS committee.</td>
<td>1 report carried out by consultant (UMA Engineering Ltd. 1996b)</td>
<td>Modeling carried out by BC Hydro staff</td>
<td>Presentation by BCMELP-WMP staff.</td>
<td>Modeling carried out by BC Hydro staff</td>
</tr>
<tr>
<td>Perceived quality of information</td>
<td>• Generally high, given the level of sophistication and amount of work that went into the study.</td>
<td>• Generally low, although parks stakeholders were generally more positive.</td>
<td>• Seen to be of good quality by those that commented, although not many interview participants did comment on this area.</td>
<td>• Participants recognized the value of this information.</td>
<td>• Ambivalence about economic information, given that values for power vary over time of year, market conditions.</td>
</tr>
<tr>
<td></td>
<td>• Some questions raised about the validity of suitability curves, and counter-questions about the applicability of alternative curves from the literature to the Alouette.</td>
<td>• In particular, methods for linking flow levels to recreational values seen as weak.</td>
<td>• General support for the rule-based curve approach used, which avoided hindsight regrets, and subjective decisions being made by BC Hydro.</td>
<td>• One participant felt information should have been presented earlier the process, so that the committee could better understand what they were being asked to do.</td>
<td>• General support for the use of a mix of economic/non-economic values, although several participants saw the need for more economic information.</td>
</tr>
<tr>
<td></td>
<td>• Recognition that there were multiple interpretations of the study, none of which was necessarily &quot;correct&quot;.</td>
<td>• Fisheries and parks stakeholders indicated that healthy fisheries flows would be the best for recreation in the long-term.</td>
<td></td>
<td>• For local participants, the choice to use a mix of economic/non-economic values was pivotal in building trust.</td>
<td></td>
</tr>
</tbody>
</table>
8. ACCOMMODATING DIVERSE KNOWLEDGES

While the Alouette Water Use Planning (AWUP) process negotiated a common set of process objectives, which were reflected in the various technical studies, there was a diversity of opinions on the appropriateness of the methodology for acting on those objectives. This exemplifies the diverse “knowledges” around the table -- the diverse institutional, cultural and occupational ways of learning, organizing information, and interacting with others. This chapter assesses the ability of the AWUP process to be open to and accommodate these diverse knowledges. Section 8.1 evaluates the inclusiveness of the membership of the Alouette Stakeholder Committee (ASC), while section 8.2 assesses the ability of the ASC members to participate in the committee’s discussions. The ability of ASC members to design and make choices about the structure of the process is appraised in section 8.3. Sections 8.4 and 8.5 evaluate the clarity with which information was presented to the ASC, and the openness of the technical studies and ASC to local knowledge.

8.1. Inclusiveness

Although the disposition order which mandated that flows be reviewed in the Alouette specified that certain groups should be consulted, additional groups were included in the ASC. In their report, the consultants indicate that the criteria used to select additional committee members included those who were:

- “considered to have an interest (a “stake”) in the outcomes of discussions concerning BC Hydro’s operating plans on the river”
- “from a representative range of organizations and interest, including local citizens and experts, provincial and federal government agencies, and key user groups”
- “good candidates for an open, participatory process that would rely on skills of articulation, listening, learning, and mutual cooperation”.

(Gregory and McDaniels, 1996)

Interview participants thought that the selection of participants was an important process, which could significantly affect the ability of the committee to function. Some of the selection criteria they gave were similar to those described by the consultants; some people suggested that even something as subtle as personality conflicts could have resulted in failure for the process.
Having gone through this process, I can clearly say without any equivocation that the key to success are the people you select. Not just for their knowledge, but for a certain sophistication in a process of democratic trade-offs and being able to be a team player and work with a group, keep an open mind. In other words it's a skill that you don't gain overnight, it's a skill you can't necessarily learn out of books.

Selection on the committee, even the personalities -- you could have got off the track very easily with that committee.

However, all of the participants in the ASC that I interviewed, even the more vocal critics of the process, indicated that there was a good attempt on the part of the planning team to ensure that there was adequate representation on the committee of those who had a "stake" in the results (Table 8.1).

Table 8.1. Inclusiveness of the ASC

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Good representation of a wide range of groups</td>
<td>• Need for better representation of local angling/recreation groups, and local riparian residents.</td>
</tr>
<tr>
<td>SM I think there was a pretty good attempt to get full representation</td>
<td>• Process by which stakeholders were selected was not sensitive to local organizations (see section 8.3).</td>
</tr>
<tr>
<td>GL No-one approached me to say that they noted any gaps.</td>
<td>• BCMELP Water Management Program perhaps should have been a member of the ASC.</td>
</tr>
<tr>
<td>TC ...everyone was there.</td>
<td>• Visitors who wished to address the ASC could have been included in discussions.</td>
</tr>
<tr>
<td>RB I think there was a pretty good representation there, public groups, people who lived right on the river, First Nations, municipal government. It was pretty well covered</td>
<td></td>
</tr>
<tr>
<td>GM ... from a stakeholder perspective, yes</td>
<td></td>
</tr>
<tr>
<td>DM ... we had a really good cross section ... of all the people who needed to be there.</td>
<td></td>
</tr>
<tr>
<td>• Open houses provided an opportunity for broader public involvement.</td>
<td></td>
</tr>
<tr>
<td>• For some participants, selection of stakeholders was open to community concerns.</td>
<td></td>
</tr>
</tbody>
</table>

In fact, a number of participants remarked that the diversity of the ASC was part of the reason that it was successful.

I think the diversity of interests that was represented was important, and I would encourage any process like this to include that. Because an agreement that Hydro needs to reach, needs to reconcile the competing interests for that water.
Believe it or not, what helped in this situation was the broad base of participants.... [It] had a calming effect, so we didn't end up with too many BC Hydro on one side, and too many residents on the other side, too many government agents on the other side.... The mix was there that was necessary.

Interview participants also compared the inclusiveness of the ASC process very positively to previous decisions regarding water flows in the Alouette River, which were seen to be made without any concern for local interests. For example, a local resident compared the involvement of KFN in the ASC to their involvement in the issuing of the original water licences.

The Katzie were involved in the [Alouette Stakeholder] committee and they were able to state their concerns and their desires. I think when the water licences were first issued in 1909 or in the 1920's, I don't think they even knew they [Katzie] existed.

One of the constraints on the inclusiveness of the committee was its overall size. For example Daryl Fields of BC Hydro emphasised that "you have to manage the numbers" [DF], and indicated that expanding the ASC could have made trust and relationship building much more difficult.

I think we had twenty and I don't think we could [have handled more], because you don't get the conversations, you don't get the trust building, the relationship building, which I think is absolutely critical to this kind of process.

A member of BCMEI felt that the boundaries on membership size were probably reasonable, and that it represented a balance between inclusiveness and efficiency.

. . . all the people who needed to be there were there. Membership could have been larger but using time and being efficient was an issue; also you need to consider what additional information you can or cannot get by expanding membership.

This concern with managing the group size was not unique to those who were planning the process, and was also recognized by those outside of BC Hydro and government.

There's an old axiom, which I'm sure you're well aware of it's that there's a direct correlation between the number of people there and what you get accomplished (Laughter)

A negative correlation.

Yeah, it's a negative relationship, because the diverse interests can get so diverse that you can never reach an agreement. So it's a balancing act, I'm no expert on it.

In reviewing her interview quotes, Daryl Fields also emphasised that consultative committees like the ASC need to be complemented by other consultation techniques such as open houses and "supplemental teams" that don't have restricted memberships.
One of the facilitators explained the evolving process by which they managed the size of the committee:

TM Every person potentially had a stake in this, because they were spending your and my money... so we could have had three million stakeholders. What we had to do was make a workable process, and so we invited a set of people, got comments, added a couple of people, a couple people dropped off, their replacements came on, and so forth, so it was a bit evolving. But in essence, we wanted to stick with the set of people we started with for obvious reasons. We were trying to do something useful other than just listen to what stakeholders had to say and write it down and nod and say, we think this is very important and hopefully the Water Comptroller will consider it.

Thus the importance of managing the size of the group was thus not merely for control, but for ensuring that there was sustained commitment to the process, and that the group dynamics would be amenable to “doing something useful”. Some stakeholders were also identified through interviews carried out by UMA and McDaniels Research before the committee was formed. Lynn Baxter of the Maple Ridge Engineering Department remembered being interviewed at that time -- "I made a suggestion of a couple of people that should be included." [LB].

As well, members of the ASC planning team and the BCMEI representative suggested that the pre-existing Alouette River Management Council (ARMC), or members of that council, had already identified many of the people who needed to be there.

RG [The ARMC] had been set up for some time already, and so they had a pretty good idea, through Tom Cadieux and Geoff Clayton, of who needed to be there as well. And we wanted to make sure we had the right provincial and federal representation, and the Fraser Basin Management Program. But it was not hard, I think in this case on the selection of the stakeholders there was pretty well universal agreement.

Although the ASC may have been seen as a logical extension of the ARMC, some of those who were involved in ARMS and ARMC felt that there were some problems with they way they had been involved in selecting ASC members (see section 8.3.1 for details). One of BC Hydro’s representatives recognized that the approach which was taken to selecting stakeholders was not ideal, and should be reconsidered in future WUPs (see Chapter 11).

DD I think in this particular case, we did a pretty good job in identifying the key stakeholders, and I think that was borne out by the fact that there were no changes to the representations. But I think a better process would have been to find a way of the stakeholders expressing interest in participating.

Despite the initial conflicts about the role of the ARMC, the existence of the council and society did create a sense of community ownership over the process. For example, people like Tom Cadieux, Geoff Clayton and others would at times play a facilitative role, by
attempting to ensure that the process was inclusive, and that those who participated showed up (see section 6.2.1.).

TC  ... everyone was there.
JV  Everyone was there that needed to be there?
TC  Steve MacFarlane called us the Luftwaffe. We made sure.... If people weren't there, phone calls went out.

A similar role in ensuring involvement was played by the Greg Mallette of the Fraser Basin Management program (see section 6.3.1.). These people played a role both in ensuring that the process was inclusive, and that it was seen as inclusive by the local community.

A number of small weaknesses were identified in the inclusiveness of the committee. One participant suggested that there should have perhaps been someone representing anglers on the river.

MR  I thought there should have been an angling group there, because ... a really critical component to the issue is the number of anglers that can fish on that river; more angling effort results as a function of more steelhead and coho coming back, and the opportunities based on catchability, which in turn occurs when the discharges are higher. So the three potential groups ... there's a local group, something called the Drifter's Club, they should have been there; or the Steelhead Society of BC; or the BC Wildlife Federation.

Now, Hydro probably wouldn't have wanted the Steelhead Society or BC Wildlife Federation, but my view was that it really was something that was missing. You had local stakeholders like Geoff Clayton, who's interested in angling or at least the opportunity to angle, but he's not a hard core angler himself ... I still think there should have been somebody else from the angling community to bolster his position.

Marvin Rosenau's concern also raises the issue of whether province wide ENGOs such as the Steelhead Society or the BC Wildlife Federation are considered to be legitimate "stakeholders" in the Water Use planning processes.

When I asked this question of people in BC Hydro and some of the government representatives who have been involved in setting policy for Water Use Planning, they were not opposed to the idea of involving provincial ENGOs, although most expressed caution.

RP  Organizations such as the BC Wildlife Federation can make a valuable contribution to the process. They may have members that have local knowledge about the fishery in a stream, which should be considered. As long as they remain focused on the issues to be resolved, such organizations may bring a broader view to the table.

DM  We do not want to consult people for the sake of consulting. I think there is a lot of "consultation burnout". You need to concentrate in having the right number of participants that represent the diversity of interest who can also make a meaningful contribution within a specified time.
Denise Mullen-Dalmer also made the suggestion, as was made previously by Drew Dunlop, that stakeholder self-selection may be the way to go — if “people really want to be involved you cannot really exclude them. But you must also force them to demonstrate their interest and show how their contribution provides value-added” [DM].

Another area of weakness in the process identified by participants was in the representation of riparian landowners.²

DF I think we were weak on the riparian landowners. We had two people in there who were specifically part of that group, one of whom was ... heavily involved in flood communications, so that seemed to be an appropriate person. The other ... his name came up from the interviews with the consultants.... Unfortunately, he was less effective because he wasn’t seen as being representative by that group.

An issue which was of concern for several of the provincial government agency representatives was the need for greater involvement from the BCMELP-WMP. Richard Penner of BCMELP-WMP did make a presentation to the ASC related to the Water Act, but was not a member of the ASC. “This was intended to keep the comptroller of water rights at arm’s length from the debate of the issues, so that when he has to make a decision, then he wouldn’t be fettered in any way by the discussions” [RP]. However, both Richard Penner and Denise Mullen-Dalmer of the BCMEI (who acted as a liaison between the ASC and BCMELP-WMP) agreed that BCMELP-WMP should be more fully involved in future WUPs.

RP Staff from Water Management need to be at the table. The purpose would be to present information about existing licences, discuss the process for decisions under the Water Act, and explore tools under the existing legislation for dealing with the issues that are raised at the table.

DM I suppose this may have been an oversight in the planning ... I cannot remember why BCMELP-WMP staff were not at the table. In hindsight, they probably should have been.

Richard Penner also felt that interaction with participants would enhance his understanding of their perspectives.

RP Participation at the table also allows the regulatory agency to better understand the issues. The interaction of people at a meeting may provide a better appreciation of the issues.

² Discussion related to the open houses in section 8.1.2 returns to the question of the involvement of broader public interests.
The greater involvement of BCMELP-WMP may address the perception of some participants that they were not presented with sufficient background on the legal and policy contexts at the beginning of the ASC process (section 7.1).

One participant from the DMR indicated that perhaps the ASC was too inclusive. He felt that there were a number of people who had been invited to join the committee simply because it was politically correct to do so (described in more detail in section 6.1.4.), although admitting that "I wouldn't have been able to make a better decision on the composition." [JH]. For example, he felt that the invitation of three First Nations which had overlapping claims, and the municipalities of Pitt Meadows and Mission whose land base overlapped the Alouette Watershed were examples of this political correctness. These problems resolved themselves, as two of the First Nations did not come to the table, and the two other municipalities showed little interest in the ASC.

8.1.1. Role of Those Outside ASC

One issue related to inclusiveness of the ASC was the role played in the planning process by those outside the committee. One of the ground rules of the process was that while outsiders could observe the discussions of the ASC, only committee members could speak. The observers could pass notes to committee members, talk to them during breaks, but could not speak during the meetings. Members of the planning team recognized that having a closed committee presented some problems, but felt that there were benefits as well.

DF There are always problems with having an exclusive committee... but the trade-off for the design of the process was that we wanted continuity and commitment. Part of [continuity] was the ability to learn all the time.

There were visitors at many of the ASC meetings, and most of them respected this rule. However, there were a couple of visitors that challenged it. These included a member of the community who had been involved in the creation of ARMS and ARMC, and a retired prison warden who had developed the first fish hatcheries on the Alouette River in the late 1970's. In particular, interview participants commented on the confrontation which occurred when the second visitor tried to address the committee. In particular, the representative from KFN was quite offended at the way in which this person was treated.

RB Little bit of the process I didn't like was the consulting company they had to run these stakeholders meetings. There was no flexibility in the way they wanted to run these meetings... There was a stakeholders committee and that was it. There are people out there with valuable
information, that just wanted two minutes to tell the committee their information [who] weren't allowed to talk. You want to say something, you write it down and have one of the stakeholders come in. I didn't like that.

This one guy and he's an older fellow from Maple Ridge come in, and he wanted to have the floor for a couple of minutes. And the guy just said no, he hollered at this old man, and this old man, he's a feisty old guy too.... And they said, come on let's go outside, we've got to talk about this. You could hear them hollering out there at each other. And he almost, this consultant was going to have a fist fight with this old guy.

Well, I thought is was absolutely disgusting. If a consultant were to come into my office here, and treat one of my elders like that, well he'd have a fight on his hands. He would be crawling out that door. I would not put up with that, it was just disgusting and from that point on I said I won't go out that door. I would not put up with that, it was just disgusting and from that point on I said I won't go to those meetings anymore.... The chief went in my place, and she had the same opinion of him

In particular, it was the way in which the facilitator responded to the man which was offensive, and the fact that he was older, which meant that he was to be respected as an elder regardless of his personality. Rick Bailey also saw the event as an example of the consultants' lack of flexibility about how the meetings were run (see section 9.1 for an evaluation of the facilitation).

Four other members of the ASC expressed concern about the way in which the confrontation was handled by the facilitator, which they felt could have been more reasonable.

SM If someone outside of the committee had something to say, and chose not to do it in that manner [i.e. by passing a note to a committee member], they were cut off right at the heels. There was absolutely no other way for these people to get their points across if they wanted to express them.

Geoff Clayton recognized that the situation at the ASC meeting had not been handled very well by the facilitators, but he was also skeptical about this particular person's ability to work with the group given his aggressive nature, and expressed relief that he had not been a member of the committee.

GC The first meeting he came to, halfway through he went off like a skyrocket, because there was no question that previously Hydro was saying things that were fairly controversial and argumentative.... That takes a certain ability to listen and rebut when you get your opportunity, but his makeup was that he couldn't handle that.... [The facilitator] ordered him right out of the room, and ... caused quite a stir with this, and he asked [the facilitator] out in the hall too.... Which really just proved that if that individual had been duly constituted to be at the table, we would have broken down before we ever got started, I mean it is that critical, one person can sink the process.
One of the ASC planners (who was not present during the incident) thought that in general, the way in which observers interacted with the committee could be improved in future WUPs, although in the case of the ASC there were limitations on how much could have been done due to time restrictions. She also thought that the rule was supported by the fact open houses were being held, where anyone could voice their opinions.

DF In terms of the rule, what we’re looking at in the future is to allow a time on the agenda for observers to speak. In that particular instance, I think that the observer rule could have been improved by allowing some time, but there were constraints that support the rule. One was time. Secondly, there were open houses, where people could voice their opinions.

She also pointed out that there were a number of visitors at ASC meetings, including Dr. Ken Magowan (a local resident involved in the Alouette Flood Communications Team), Ken Ashley (BCMELP), and others, many of whom made comments to her that they were impressed with the process. She emphasised that while the incident where conflict arose with a visitor was not unimportant, it is perhaps not typical of the observers who attended the meetings.

On the other hand, Rick Bailey suggested that this was not an isolated incident from KFN’s perspective, as they did not have good reports from other First Nations on the consultant.

RB I’ve actually heard from other First Nations that have dealt with him ... They didn’t like it either ... you can’t treat people that way, especially not elders.

Finally, Rick Bailey made sure that I knew that he didn’t dislike the facilitators as people and was able to go to the final dinner after the ASC reached agreement.

RB I was able to go shake hands with him, and tell him it was good to see him again, now that we’re not working together, and we laughed about it.

JV It was nothing personal?

RB It was just his structure, and the way he was doing things that I didn’t like, because I don’t know him personally.

8.1.2. Open Houses

DF In terms of the broader consultation, I think there are things we could have done better there. We now being the stakeholder committee.

While the ASC was a closed committee, there were some opportunities for the general public to be involved through open houses. These were organized by UMA Engineering, the other consultant working on the AWUP. BC Hydro representatives and the facilitators felt that the open houses played a key role in the development of the committee and ensuring that the process was open. While the purpose of the open houses was to feed
information back to the stakeholder process, this was perhaps not their main benefit. For example, the open houses were also seen to be raising awareness about the AWUP process in the community and thus empowering the process.

JV Was that information from the open houses, did that feed into the stakeholder process?
RG Partly that fed into the stakeholder process, and partly it was just that those open houses were happening, so that everyone knew that the work had gone on. So it gave us more power, it empowered us.

DD It was an opportunity for those not directly involved in the process to provide input, to learn about the status of discussions, and ask questions. But by and large, I can’t think of any new issues that came up at the open house. The issues that came up had already been presented by the stakeholder committee members. And I’m not discounting the value of the open houses, because that was an important part of the process....

There was some concern that it was a closed process ... and the open houses were a way of drawing everybody into the process and making it more open.

DF My overall assessment of the information that came that way, it was useful in that we heard the passion behind people, all of the stakeholder committee members did. In terms of substantive information, some at the beginning, but not a whole lot.

Daryl Fields also suggested that in the future, improvements will be made in how the open houses are connected with the stakeholder committee process. For example, open houses will take place at key points, such as when the WUP committee has some concrete results to put in front of the wider public (see section 9.3).

DF This is something we would work towards more structure on next time, at key points. For example, the intent would be, after you have set objectives and measures, to go back and say: “These are some suggestions about objectives and measures, what do you think about them? Please comment.”

Participants not involved in the planning of the ASC tended to be somewhat vague on the effectiveness of the open houses. Some participants had little recollection that these had occurred.

JV ... they did some open houses and they interviewed people about what their issues were. Were you part of that at all?
JH I don't think I was really part of that, and I don't have much recollection of it.

Others, particularly those involved in ARMS and ARMC found the open houses held at the beginning of the process to be redundant, given the work they had done in educating the community.

TC You’ve got to think of that, three information sessions. The people we brought to the table were educated through the council. They weren't new people.
Another member of ARMS, recognized that BC Hydro was using the open houses to try and ensure that the ASC was accountable to the broader community (see section 9.3), but he wondered if the open houses were a sufficient way of consulting with people such as riparian landowners.

GC You've got people that have riparian rights that are living along the river. There has been a fair amount of extinguishment of those rights, but there still are legal rights there, according to people like Greg McDade of the Sierra Legal Defense Fund. This type of open house, you advertise in the paper, but there is the chance that some people don't see the ad, or they don't come for whatever reason. If you are going to change the flows and inject changes to the riparian area of the river, they may be able to argue that they have been impacted by things they haven't been privy to. This was the first time water rights have been put on the table, but there is a risk that this could be overturned by a court challenge ... I wonder if down the road it would stand up. It would be terrible if it didn't.

In addition to the open houses, several forums were organized by the facilitators to enable those on the committee to meet with their constituencies. One was a meeting held with the DMR on the issue of flood control (see section 8.5.2). Another was a meeting held on June 12, 1996 to which all riparian landowners were invited to discuss the flood communication plan and have input on flood control issues.

8.2. Equal opportunity to participate

DF If I ever had the sense, or Charlotte [Bemister of BC Hydro] had the sense that there were people who were alienated -- which was different than not participating in everything -- then we would have changed the dynamic. It was a judgement call on my part and the consultants part, in discussions with Geoff [Clayton] and people like that.

TM I think we tried to overcome people's frustration at not being able to speak freely [like a conversation] ... and we tried to be attentive to issues like body language, or people feeling concerned or that they had been dealt with unfairly.

From the consultants report, as well as from the comments of the members of the planning team in the interviews, it is clear that the team was concerned that everyone on the ASC participate as fully as possible. Many of the ASC members felt that they had done a good job in ensuring that this happened, although a few weaknesses were also identified (Table 8.2).
Table 8.2. Equal Opportunity to Participate in the ASC

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
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<tbody>
<tr>
<td>• Everyone was able to state their views,</td>
<td>• Some of the more vocal community</td>
</tr>
<tr>
<td>make their cases, express their</td>
<td>representatives were not allowed to</td>
</tr>
<tr>
<td>frustrations</td>
<td>express their views, particularly in the</td>
</tr>
<tr>
<td>DM At the table everybody was equal.</td>
<td>beginning stages of the process.</td>
</tr>
<tr>
<td>Everyone could participate and comment</td>
<td>• Some participants felt that some ASC</td>
</tr>
<tr>
<td>and be heard.</td>
<td>members, such as KFN, were not</td>
</tr>
<tr>
<td>GL There were some heated moments, no</td>
<td>heard from or did not participate as</td>
</tr>
<tr>
<td>question about it, but everybody did have</td>
<td>actively as they could have.</td>
</tr>
<tr>
<td>a chance to make their case.</td>
<td>• Other participants thought that KFN</td>
</tr>
<tr>
<td>• Participants developed an understanding of</td>
<td>representatives were not vocal, but did</td>
</tr>
<tr>
<td>the views of others around the table.</td>
<td>exert a lot of influence and provide</td>
</tr>
<tr>
<td></td>
<td>valuable input when they did speak.</td>
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</table>

The ability of ASC members to actively participate went beyond simply being able to express their views. For many participants, true participation involved understanding and recognizing the views of other members of the committee.

DM I think most participants came to the process with experience in the traditional negotiating model. That is, position based and the desire to “get something out of this”. What we worked towards and eventually achieved was seeing others’ points of view and recognizing that this was not a win or lose situation but a process where there was potential for incremental improvement all around.

LB But the biggest thing, I think, it was the learning curve that helped us, everybody learning everybody else's concerns.

While there were many positive assessments of the ability of people to participate in the discussions of the ASC, there were also some limitations to that participation. As alluded to in a previous quotation, while everyone may have had a chance to state their case, everyone was not exactly equal at the table. Some had access to resources that others did not, or were able to speak more eloquently, or were recognized as being more (or less) knowledgeable than others.

A few participants had serious reservations about the accessibility of the process, and the ability of the facilitators to ensure that everyone was heard (see section 9.1).

GM There were lots of people who felt that they were not heard, in my opinion, [such as] First Nations people. There was lots of problems with [the consultant’s] facilitation techniques, lots of people thought that he would ignore them at the meetings.

Others suggested that participants may have had difficulty making their views heard at the beginning of the process, but that accessibility improved as the process progressed. For
example, some people felt that in the early stages of the process Geoff Clayton was cut off when he had something to say, but that he was recognized as somewhat of a spokesperson for many of the non-governmental stakeholders at later stages in the process and was allowed to speak more freely.

MR  Certain people said a lot, and certain people didn't say much, and there was a view internally within public stakeholders that the people that had stuff to say, specifically Geoff Clayton, were being cut off by the facilitator, that he wasn't being allowed to bring his position forward. Now, most of the other people weren't familiar with the situation like Geoff was. He's an ex-Hydro employee, he was on the technical committee, he was a local landowner, he had lived there for a long time. So there was probably nobody in the room that had the same kind of local perspective that Geoff did. And Geoff would push some points, and that didn't appear to be appreciated at first by the Hydro people and by the facilitators, but as the process wore on, and the rules of conduct were sorted out, Geoff basically became a very strong spokesperson and was allowed to say his piece.

Others did not feel that community representatives were being hindered, although they recognized that some of the committee members felt this way.

MM  I think that a few times I witnessed frustration on the part of some members of the committee who felt that BC Hydro's position was being perhaps overly dominant in the discussions. But, I didn't necessarily [agree], I think that the discussions were open enough that that frustration came out, and I always look for that in a process.

There were also concerns about the extent of the participation of the Katzie First Nation representatives. Many of those who raised these concerns were sympathetic to the KFN's limited involvement in the ASC, although some felt that greater efforts could have been made by KFN to "buy into" the process.

JH  I think that at times Chief Bailey from the Katzie's may have wanted to say more than she actually did, that's just a suspicion on my part, we didn't discuss it or anything.

SM  I would have liked Katzie to have been a greater participant. They took the stance, and probably rightly so from their perspective, that they would participate more as observers and not truly buy into the plan. They obviously have bigger issues to deal with, but it does leave an air of uncertainty over these things in the long term. . . . Having said that, they were still active participants during the meetings. They were at most if not all the meetings and when asked for their position, they put it forward as best as they could, with the rider that there are land claims talks and aboriginal rights that still needed to be addressed.

MR  [Katzie First Nation] appeared to me to see this as another non-First Nations initiative that the Katzie's really didn't have strong input into. It's difficult to know how you bring First Nations into the issue in a really truly meaningful way when, perhaps, culturally it isn't appropriate to sit around a table and scream and yell at each other, and try to out-maneuvre the other guys.... Geoff [Clayton], I think, did a very good job of carrying the issue for the Katzie's, as best as he could; and they trusted him and he trusted them. But I think the lack of a clearly defined way of bringing First Nations into the process is another flaw.
One of the barriers to participation of KFN may have been concerns about the effect discussions would have on their treaty negotiations. The format and adversarial nature of the meetings may have been an equally significant barrier to their involvement (see section 8.5.3.1).

On the other hand, Rick Bailey of KFN felt that although they may not have been the most vocal participants, they had contributed to the process at various key times. For example, he described a time when the discussions were not moving forward and his contribution helped to get things started.

RB  ... one meeting that I was at, I was very quiet, I didn't have a lot to say. Some people from ARMS and BC Hydro were debating back forth, and I couldn't see them just going anywhere, nothing was going to happen again. We desperately wanted this water to come back into this river, to bring the fish back, recreational opportunities, swimming holes. And so, we asked for a minute alone, and BC Hydro left the room. We were talking and they said, Rick, you're awful quiet, don't you have anything to say, what would you say to these guys?

So I told them, I'm tired of these damn meetings, let's get something done here, we want some damn water back in the river. And they all looked at each other and said, yeah, when they come back in, you tell them that.

JV  [laughs]

RB  So, they came back in, and they started debating a little bit more and then one of the ARMS guys says, Rick have you got any comments, have you got anything to say? And I said exactly that ... and BC Hydro went, oh OK. And it took a couple more meetings, but announcement was made that we could have the water. That time they went up to 70 cfs [2.0 m$^3$/s].

Geoff Clayton made a similar observation, in that although Katzie may have not been the most vocal participant, they did have a strong and persuasive influence on the group, and were a key ally to ARMS.

GC  [Katzie First Nation] didn't say a lot, which they don't have to, they cast a pretty long shadow, and they said things behind the scenes to us.

8.3  Process Control and Self-Design

DF  The disposition order said that we had to consult, and that we had to consult with specific groups. That was a huge wide window. We could have in fact gone and met with them, each of these groups individually one time, and that would have been consultation. I think it would have been thrown back in our face if we did it that way.

While the planning team recognized that they needed to meaningfully consult with the various groups mentioned in the disposition order, they also identified a number of constraints which they were working within. As was described previously (section 7.2), there were considerable fears within BC Hydro about forfeiting decision making to a multi-
stakeholder committee, which were calmed by carrying out the AWUP process as consultation rather than collaborative decision making.

The fact that it was a consultative process was noted by most of the participants. But while participants recognized the potential for BC Hydro to have manipulated the results of the ASC, most thought that the WUP submitted to the comptroller had reflected the decisions made by the committee.

GC The disposition order said, and BC Hydro will write the terms ... of the water use plan and submit it to the comptroller. Well that meant that regardless of what went on in the stakeholder process, they were still going to write the damn report, and if they had wanted to play games, they could have disregarded everything that went forward, but ... at great peril because everybody in the stakeholder process would have written their report too.

Geoff Clayton's remark raises the question of how decisions are made in a consultative process. If BC Hydro could not make significant changes to the ASC agreement as it wrote the AWUP, the ASC was in fact a decision making body. Any influence over the process exerted by BC Hydro would then have to be much more subtle, in the structuring of the process.

In addition to being a consultative process, the AWUP process was planned as structured decision process, based on decision analysis theory.

TM What we wanted to focus on was running the work as a planning and decision process as opposed to a straight consensus process. [We took this approach for] many reasons, not the least of which was that the client was certainly interested in doing this, and that was our motivation in doing the work, but also, more to the point, as this paper [(McDaniels et al., 1998)] talks about, I'm not a believer in just doing straight consensus processes. I think ...you can find tons and tons of evidence in both research and real life, that left to their own devices, people are just very bad at making complex decisions. And in small group contexts, you can generally find tons and tons of information that say that people are also pretty bad at making complex decisions.

Now this is not arguing against public involvement. Rather, it’s taking the tack that we should think about how to aid people in structuring such a complex process, and what are the basic steps in trying to make wise choices. We cast the work around a series of basic questions that everybody agreed to immediately as being completely sensible for structuring the process, which included: what's important, what are we trying to achieve here, what do you care about, regarding the future of the Alouette? What possible alternatives are there, what would be their consequences, what do you think about the pros and cons of these alternatives and which alternatives can you support? We basically spent the whole time with the group focusing on those questions.
Daryl Fields of BC Hydro, who was planning the process with the two consultants, gave additional reasons for why structured processes are superior.\(^3\)

**DF** This is an issue I have with consultation theory that says that you should let the stakeholders decide their process. I personally disagree with that. To be blunt, I think by doing that you end up with huge compromises and a diluted process.

**JV** What do you mean by that?

**DF** You can end up with what is minimally acceptable to everybody, because it is commonly understood or loosely-enough defined, etc. It isn’t necessarily what is most effective.... I firmly believe in a structured process. I think it actually helps negotiations, helps people think things through, and helps education by and of all parties. I’ve been in processes where the choice of steps or process is stakeholder driven or not structured, and I get very frustrated.

On the other hand, there is a wealth of information and real development of tools and techniques for multi-stakeholder and resource management decision-making. These can significantly enhance a consultative process for all parties. Unless stakeholders themselves have this and/or are comfortable with (i.e. trust) the approaches, an opportunity to use them may be missed.

The BCMEI representative felt that the approach used by the planning team was structured, but that stakeholders shared in the control of the process to some extent.

**JV** did the stakeholders in a sense control how the process was run ...?

**DM** It was shared. B.C. Hydro put a structure in front of the participants as an initial starting point and guide to the end point. Participants modified this as the process went along to accommodate new issues and timing constraints. This was done collaboratively.

In the interviews I had with participants, most people did not specifically comment on the decision analysis approach. Some recognized that these were tools that the facilitators certainly did have some expertise in, and something that worked.

**JV** One of [the facilitator’s] techniques, was to generate alternatives about different situations, and then have people say, well I can live with this or that, but not that. Do you think that was a useful tool?

**JH** Yes ... they knew what they were doing in that regard, that was certainly something that worked.

Another participant felt that “Tim and Robin had far better concepts on the process” [GC] in comparison with UMA Engineering, the other consulting company working on the ASC process. A participant from the DMR remarked that the techniques they used were fine, but that sometimes their application to the problem at hand was imperfect —“it was ok, but we had to remind him that sometimes that he had the wrong alternatives” [LB]. The process developed by the facilitators was also widely described as a more democratic model for

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\(^3\) Tim McDaniels, Robin Gregory, and Daryl Fields (1998) have written a paper together on the AWUP process, in which they elaborate on these arguments.
decision-making, which was compared very positively to earlier decision making approaches.

FW I think the introduction of this kind of a democratic, consultative process is a good thing -- and get away from the arrogant and dictatorship kind of model.

As was previously mentioned, one participant, Greg Mallette was extremely skeptical of their approach (section 7.2.2.5). He described the results of the ASC as being like that which the consultants feared -- a consensus decision, but not a wise decision.

GM It's the classic NDP approach, that, bring everybody into a room and as long as we have consensus, then it's good enough for everybody. But consensus doesn't mean that you've made a good decision for the resource base.

One of the only other concerns with the application of the multiple account approach in this case came from Daryl Fields. In general, she was very supportive of the multiple account approach. In this case, she felt that there had been good discussions on each of the individual decisions, but that the final decision had been structured as only two alternatives, which had set up polarized negotiations.

DF We had a good discussion of options and the implications for each of the objectives, and costs. I was very disappointed when we tried to combine them, so we were looking at a package.... Basically [the consultants were planning to come to the] meeting with two options.... What that did was it set up polarization and negotiations, which I was not happy about. What I wanted to see was a much greater array, so you could see where the trade-offs were, rather than just juxtaposing one against the other. I think if we had had this, the last two sessions would have been easier.

In summary, few participants raised concerns about the decision analysis tools used per se, although they may not have had a comparative basis to do so. However, an incident at the beginning of the process relating to the role of the ARM Council in the AWUP process provides some insight into the question of process self-design.

8.3.1. Issue: Role of Alouette River Management Council

Some of the difficulties were encountered at the beginning of the ASC process, in its relationship with the already existing ARMC. In particular, the process whereby ASC members were selected was somewhat problematic from the perspective of ARMS and ARMC representatives.

GC Our situation out here was unique in that we have an Alouette River Management Society, we also structured a council made up of all the agencies that we felt had an impact or controlling interest on the river. And therefore, we felt that we had selected the stakeholders, although we didn't foresee this process.
BC Hydro very clumsily gave the terms of reference, I believe, to the two mediators ... to go out and select the stakeholders... They selected them, and they tried to pick the key players as they saw it, [but] the first meeting was almost a donnybrook, because it really offended the president of the council, that had spent many days and hours of his own time to try and set up a council and get adopted

While in retrospect the planning team recognized that this had perhaps offended ARMC chair Tom Cadieux, they felt that at the time they were constrained by the wording of the Stave Falls disposition order.

TM The order from the Water Comptroller's office that called for BC Hydro to do consultation named certain people to be included.... [BC Hydro] had to follow the terms of this order, and invited the people who were designated, and then accepted on the committee the people that those people designated. In a few instances, some members didn't like this, because they would have rather had people that they had developed a working relationship with in the past.

However, the issue of who was on the committee appeared to be less of an issue for ARMS and ARMC representatives than was supposed by the planning team. They felt that in the end they had invited almost all of the members of the ARMC to participate in the ASC. Instead, the issue for him was that they did not acknowledge the ARMC as an organization.

TC In the early stages I was quite frustrated with the process. Here was someone already on the ARM Council ... from BC Hydro, but in the early stages of them bringing the stakeholders to the table ... they never acknowledged the ARM Council, which was already 23 groups long. In the end, they invited almost all of the people there, but in the process they didn't validate us. Now they say they would have. That was very frustrating for me, because I was overtaxed with work, trying to do everything for everybody, including my own job on top of that.

The issue was less one of who was chosen to be on the ASC, but how those people were selected. Tom Cadieux thought that there was an element of control and mistrust in the actions of the consultants during the initial stages of the process.

TC The incompetence in the front end was so frustrating. One, not acknowledging the council, and letting us do the recruitment with them in partnership .... And two, the incompetence of what they were doing, ... by literally almost saying they're going to control this process at the front end, and that's where the negative was coming out. What was going on under the table is that we're not going to let you control that process, we are -- and they just didn't trust.

Although there were official facilitators for the ASC, many of those in the community such as Tom Cadieux also played a facilitative role in ensuring that the community was well represented, and that those from the government agencies attended the meetings (see section 6.2.1). However, at least in the initial stages, it appeared to him that those who were being paid to facilitate the process knew less about what was going on than he did.
He also had a sense of frustration from attending two information sessions before the first ASC meeting, which he felt were unnecessary (see section 8.1.2).

TC I'm a very cool player, but I lost it at the first stakeholder meeting.... They had sent me notes, and they called me the chair of the Council, and I'm not sure if I should be phoning the Council people or should they. And so I phoned all the council people, not knowing that they were supposed to do that. And I showed up at the meeting, and the people that were facilitating, it was a consulting firm, they didn't have a clue where anybody was and I knew where everybody was.... The incompetence in the front end was so frustrating.

The rocky relationship between ARMS/ARMC and the ASC process was recognized by Robin Gregory, one of the facilitators. He also acknowledged the frustration of many people with more "process".

RG Well the two big process questions -- one was people wanting to hear more about options and effects and impacts, and not wanting any kind of process, because these were pretty sophisticated people, who had been to a lot of processes, so they wanted to get on with it.

....

We had to talk a lot with ARMS, and make sure that they didn't feel that we were undermining them. Because we weren't ... undermining or co-opting them. But ARMS had been doing good work for a number of years, and so suddenly there's this new player with BC Hydro money, so we had to make sure that they felt comfortable in participating. And yes, that was a little rough - so lots of conversations. Getting to know people and letting them know us.

This work at building trust seemed to be successful, in that many of the greatest critics of the process at the beginning became supporters by the end. Some of these misunderstandings may have also been related to the work done by UMA Engineering prior to the ASC process in identifying issues and potential committee members.

TC ... I like Gregory big time, right, but I was looking at Gregory then, and I know he could read me. No, it wasn't their fault. It was the other consultants that were the ones that I'd blame on this one, and I can't think of their names.

JV UMA?

TC That's it. They're the ones that really screwed up for Hydro, and Hydro was too much of a controller, and either it was a mixed message between Hydro and UMA, or UMA was just screwing up big time as an organization getting things done.

Some of the misunderstandings about the role of the ARMC may also have come from the government agencies participating in the council, who did not feel that the council was the forum for negotiations on water flows. There may have been a lack of communication between government agency people involved in the ARMC and those from departments dealing with hydro or water management issues specifically.

SM The DFO representative on the ARM Council would not have had any direction or authority to deal with hydro issues specifically. It may well be that the issue of a dribble going down the
Alouette River is what brought everybody together, but DFO didn't go to the council table to deal with minimum flows.

8.4. Clear communication of information

DM The Alouette process was just a really good opportunity... for people to understand each other's "languages". As technicians we were forced to "translate" our perspectives and knowledge so that other people could understand it.

In addition to the openness of the ASC process, as indicated by its inclusiveness, equality of participation and power sharing, the openness of knowledge base upon which the process depended was also important. One aspect of this openness is the ability of technical experts to clearly communicate their information to the ASC, which included people with a wide variety of backgrounds, schooling levels and disciplines.

TM I would say, we worked hard to devise ways of communicating this technical information, which is quite complicated. It involves how frequently will floods of a given size return, and that sort of thing, and we tried to develop meaningful measures to communicate these uncertainties to people... I would try and help the BC Hydro people prepare the information so it would be understandable to the group, to get rid of the technical curves that are meaningful to the engineers, and instead focus on some useful summary measures that would be widely understood....

But I certainly wouldn't be surprised if people would now say in hindsight that they didn't really understand all that stuff, that they kind of took the results at face value.

As another member of the planning team remarked, because of the numbers of presenters and the diverse ways in which people learn, communicating technical information was an ongoing challenge.

JV ... What was your impression of the ability of people to make that [technical information] understandable?

DF Really varied. As it would in any process. I think if we'd had more time we would have spent more time on it.

In spite of difficulties in presenting the information, she felt that the participants had still been able to develop a good understanding of the issues. For example, she felt that the information on flood control was difficult to understand, but did result in a good discussion nonetheless.

DF We went around the flood stuff, which I think is probably the most complex and the material was most very difficult to present. They would hand out legal sized papers full of numbers, which are really difficult [to understand]. But there was still really good discussion around it.

In general, many participants were positive about the ability of the scientists and consultants to communicate their results to the group. For some participants, the credibility
of the information was enhanced by the fact that the information was presented in an understandable manner, but also in enough detail so that the logic behind the approach could be seen.

DM Power generation, in particular, is a difficult area to understand. I think most laypeople see it as a black box. I do not think that power generation has been explained very well, we just accept that we get and use electricity in our homes but not where it comes from and how it is generated. The way power interests were presented at the Alouette table was done fairly well. Spreadsheets were used to show different scenarios. I think, for once, people actually thought about what the power implications were, rather than just hearing that some suggested solution to a particular issue was not going to work.

On the other hand, many others didn't follow the technical debate closely, but relied on the interpretation of others that they trusted (see section 9.2).

JV ... there’s all these technical studies and so on, how well did they communicate that to the group?
TCh They did a very good job, because they were too complicated for most people, including me. 90% of the people there couldn’t understand them, so they’re best not to be dealt with on the committee. They had sub-committees that went away and discussed, ... then they reported back to the group. That was done on a regular basis, rather than to waste the time of 20 people.

Others were ambivalent, suggesting that they did not always understand or had to struggle to keep up. Some suggested that perhaps it was not the fault of those presenting but due to their own lack of knowledge or full participation in the process.

MM Some of the fish flow study stuff, I mean I found it fascinating, but because I was not there every meeting, I found myself having to catch up sometimes, in technical areas that I really didn't have a lot of knowledge in. So that was perhaps difficult, and I'm not sure I would fault anybody's delivery as much as I would my own inattendance on a very regular basis.

JV It was fairly understandable?
JH Yeah, sure it was done alright. It was just that sometimes, maybe I was the dumbest guy in the room.
JV [laughs] I don't think so
JH I don't know, but sometimes I had to struggle with that. I had to kind of work at it.

While most participants felt that they were eventually able to understand the information they were presented with, it is important to recognize the difficulties they had. Their struggle with technical information was one of the costs of participation.

Some of those who presented to the group remarked that it was difficult to present things in a way which was understandable, but not shallow. For example, James Bruce explained.

JB I can boil it down to simple terms for the general public, but if you've got a little bit of biological knowledge, you're going to want more in depth explanations as to what's going on. But then you might want to start diving into the subject in more detail, and all of a sudden you're overwhelmed.
with technical information - it's not simple and straightforward. There is also a time constraint. If I were given enough time, I would be able to describe anything, but in reality, I typically have less than one hour to give a presentation.

Richard Penner, who made a presentation to the committee on water law, indicated that it was difficult to present to people who lacked the necessary background and experience. For him, the greatest problem was with people who had a little bit of knowledge about the Water Act, and would take that information out of context. As described previously (section 8.1) he felt that it was important for staff from Water Management to be at future WUP tables, where they could contribute their knowledgeable about the Water Act more directly.

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RP Interpretation of legislation is not straightforward. Phrases and sections taken in isolation may mean something quite different when taken in the context of the Act as a whole. Misinterpretation of the Water Act can be very disruptive in a process such as the WUP, and it is important that people who are knowledgeable about the legislation be available to provide information to the table.

But while sufficient background knowledge may make the process of communicating information easier, an equally key factor is the openness of the knowledge gathering process itself.

8.5. Openness to other kinds of knowledge

The ability to communicate technical information clearly is an important aspect of the openness of processes like the ASC. Taking the concept of openness beyond one-way information flow implies that multi-stakeholder processes need to take into account the knowledge of participants as well. There are two aspects of interest here: the openness of the ASC to the local knowledge that participants brought to the table, and the openness of the technical studies to the questions, values and desires of the participants.

8.5.1. Openness to Local Knowledge

Not only were technical experts heard from, but others with expertise in non-technical areas were also heard from. For example, Terry Glavin, Katzie's treaty advisor, made a presentation to the group on the history, aboriginal rights and interests of the Katzie First Nation in the Alouette River. Likewise, various committee members from local organizations such as ARMS, DMR, KFN and the Alouette River Field Naturalists (ARFN) had extensive local knowledge about the area. Some were long term residents of the area, or had been involved in various activities in and around the Alouette River, such as working
on stream restoration projects, bird watching, fishing, tubing, swimming, or just walking along the river banks.

RG  The lay knowledge vastly outstripped anything else. The technical knowledge, on the power side and the fisheries side, even there, there were lay people who knew a lot about power production, Geoff Clayton for example has worked for Hydro, and on fisheries a lot of the people knew a tremendous amount about the fish resources that used to be there.... Half of the stakeholder group would walk up the river frequently observing fisheries resources. So there was a tremendous amount of lay knowledge.

LB  [Tom Cadieux and Geoff Clayton] understood the river, they'd been involved in it, they'd been in the [Alouette River Management] Society, they had some expertise ... with the local conditions.

GL  The group from ARMS are pretty knowledgeable about that river. I would venture to say that they're as knowledgeable about that river as any group is about any river. I mean they've adopted that and it's their reason for being,. I take what they say as gospel, tempered with the fact that they're totally committed.

Much of the local knowledge was seen as stemming from their hands-on work and local observation in and around the Alouette River. On the other hand, Graham Lorimer indicated that the local knowledge of groups like ARMS also had to be seen in the context of their total commitment to the Alouette River. One of the DMR representatives recognized that people like Geoff Clayton brought a lot of information to the table, but was unsure if that knowledge made a significant contribution to the decisions of the committee.

JH  ... maybe Geoff's a bit of an exception to it all. He does bring a lot of information, personal information to the table about the river ... it was useful for sure. How critically important that was to the committee to make a decision, I'm not sure.

....

Everybody brought their own thing to the table, I'm not sure that that was that significant, because when we needed information, we were going to get it from wherever.

Drew Dunlop of BC Hydro indicated that many of the important perspectives were put forward by local groups, such as KFN, DMR and the ARFN, which had not been extensively heard from before the ASC process began.

DD  Because we had been doing instream flow studies, the knowledge about the fisheries resource in the river was, I won't say well known, but we certainly were aware, as were others around the table, DFO, MELP, ARMS.... Really the most important perspectives put forward at the table were perspectives from other than those groups, so Katzie First Nation and the District of Maple Ridge were two key contributors in terms of additional information, but there were other groups, the Field Naturalists.

In particular, the knowledge of groups like the KFN and the ARFN was seen as a less quantitative sort of knowledge, but rather as a storytelling or qualitative knowledge (see
section 6.2.2). A number of participants commented that this kind of knowledge was beginning to incorporated into process like the Alouette.

DM I think we often try to make things too “scientific” and quantitative, thinking that that will give us some credibility. However, in the past we have discounted the credibility of people's intrinsic knowledge about where they live, because they just live there all the time, and understand what’s going on. We are gradually starting to incorporate more of the qualitative and historic knowledge into decision making and accept this kind of information as valid.

Drew Dunlop also emphasized that the information that ASC members presented to the rest of the group had to be factual, something which he felt had not happened at the beginning of the process.

DD At the outset, probably for the first half dozen meetings, there was a fair bit of positioning going on, and some inflammatory statements made that weren’t true. It was only with the consultant calling question on that a number of times, and really going over ground rules for the meetings ... that we were able to get past that, and get to the point where everybody was contributing positively to the meetings.

JV So there were ground rules about not doing that kind of thing...?
DD ... everybody had a responsibility to ensure that the information they were bringing to the table was factual.

Although some participants were excited about the role local knowledge played, there were also many barriers to its use and integration with other kinds of knowledge in a forum like the ASC (see section 8.5.3). In spite of support for local knowledge in a general sense among ASC members, many of the more technically oriented people were skeptical about the value of local knowledge.

8.5.2. Openness Of Technical Studies

MR I saw it as something where if you had stakeholders that were really and truly interested in fisheries, we could provide them with factual information and they could make their own decisions.... I used the word white knight to describe the stakeholders, but really in some ways its true public consultation and decision making ... I think the public when they're given the facts are very strongly in favour of protection of fish, and we can't do that without giving them the information.

The ASC heard from a great variety of natural science and engineering “experts” in areas such as hydro-power economics, fisheries, recreation and flood management. Both of the facilitators remarked that the process by which these various experts were invited was quite open, and indeed that they tried to respond to information requests from the group.

RG We wanted an explicit mechanism for bringing information into the consultations, as requested by stakeholders. And having mechanisms in place so that that information, the quality and type, could be responsive to the stakeholders. So the stakeholders could make requests to BC Hydro for
information, and Hydro could make requests from the federal fisheries or provincial fisheries. And then there’d be ongoing discussions which might result in additional work being done.

In addition to ensuring ASC participated in decision making, it was also important to the consultants “to share all information, by distributing copies of key data to all ASC members” (Gregory and McDaniels, 1996). Many participants remarked on this openness.

MM What was interesting about the process was that the research was put out in front of people, there were presentations, there was questioning ...from all quarters. It was pretty much an open book. I didn’t sense any hiding of any pertinent data.

However, others suggested that this openness with information only came later on in the process, and that those outside of BC Hydro and government had difficulty accessing information before the ASC process began and during its initial stages.

TC ... it took a major exercise for them to go from that, keeping us in the dark with the flows to really giving us some good stuff, and I think we made some major headway in that.

RB ... what started out as, BC Hydro is the enemy, and then closer to the end it turned out more like it was we were working together.

JV So what were the things in the beginning that made it like you were in conflict with them?

RB Well just the way it started up. Well, we always had trouble getting information out of them, and we were trying to get more water, and they had all kinds of reasons why they couldn't.

An example of some of the difficulties just prior to the AWUP related to the way in which information was distributed as BC Hydro prepared to upgrade the Stave Falls powerplant and consult with First Nations (see section 6.2.1.4). The information which was sent to the KFN for comment was beyond their capacity to handle, which led them to seek help from ARMC. What evolved was a useful collaboration between KFN and ARMC.

This kind of information flow was typical of the period before the ASC process began; as the process evolved, many sources of information became more readily available and better attempts were made to explain the information to non-technical experts. For example, one of the steps of the ASC process required participants to choose between various measures for the process objectives.

DM ... we spent a long time trying to figure out how we would measure things. For example, on fish, was it habitat, or was it number of fish.

Although stakeholders were involved in choosing the measures, Daryl Fields of BC Hydro felt that discussion had not gone extensively into the technical details, but had provided a springboard for the education of the ASC to begin.
JY And about the measures that were used, was that also part of the ... discussion?
DF Yes, but there wasn't too much discussion on it. It was done pretty quickly, up front ... [The committee] weren't ready to do anything technical, and a lot of the measures were pretty obvious. But that's where the educational stuff started happening. We had someone in to talk about valuation of power, we had a couple other people in too ...

Some parts of the technical studies were carried out on the basis of the measures chosen by the committee, such as recreation, flood control, and power economics. Even in that case, the latter two measures depended on existing models developed by BC Hydro. The FFS was already well on its way, although the ASC discussions did result in some additional work being done. Participants indicated that there was a tension between making use of technical studies that have already been carried out, or trying to carrying out a pre-consultation process to develop terms of reference.

DM You are always struggling between (1) having a pre-consultation process to develop terms of reference that everyone is satisfied with on technical issues, but where not everybody understands either the technical elements or the potential output; or (2) trusting the people who have the technical expertise to explain results in a way that can be generally understood and provide participants with some level of confidence that the work is rigorous and credible.

Thus, in order to gauge the openness of the technical studies, each has to be looked at individually. I have focused on the studies related to fisheries, recreation and flood control. The results are summarized below in Table 8.3, and described in further detail in the following sections.
Table 8.3. Openness of Technical Studies

<table>
<thead>
<tr>
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<th>Fish Flow Study</th>
<th>Recreation Study</th>
<th>Flood Control</th>
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<tbody>
<tr>
<td><strong>Strengths:</strong></td>
<td>• Study carried out by BC Hydro staff, but overseen by collaborative committee involving BC Hydro, DFO, BCMELP and ARMS.</td>
<td>• Consultant that carried out study reported preliminary results to ASC, got feedback.</td>
<td>• Attempts made to make study meaningful to ASC members, by using the November 1995 flood as a reference point.</td>
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<td></td>
<td>• Additional modeling carried out at the request of ASC.</td>
<td>• Additional input obtained from parks agencies.</td>
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<tr>
<td><strong>Weaknesses:</strong></td>
<td>• Involvement of public stakeholders not designed into FFS process.</td>
<td>• Inadequate response to requests of some stakeholders to utilize more rigorous methodology, possibly due to a lack of resources.</td>
<td>• No external review of model.</td>
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<td></td>
<td>• ARMS seen as an observer, not full participant in FFS committee.</td>
<td>• Difficulties in connecting flow in the river with something that local recreational users could identify with.</td>
<td>• Lack of clarity in information presented to the committee on flood control modeling.</td>
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<tr>
<td></td>
<td>• Some BC Hydro scientists felt their ability to interpret the study for stakeholders limited by the participation of other FFS committee members on both the ASC and FFS.</td>
<td>• No external review of model.</td>
<td>• Lack of clarity about how flood protection alternatives were selected.</td>
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8.5.2.1. Fish Flow Study

As was previously described, the objectives of the FFS were set before the AWUP process began, which was recognized as less than ideal by some within BC Hydro (see section 7.1.2.1). However, the planning team felt that the ASC was able to influence the FFS process in order to answer questions that the committee was interested in.

RG The second real outside thing was to work on fish, and that was to try to put some extra pressure on the fish study team people to come up with some of these timely estimates that were relevant to the kinds of questions we were looking at. And that, I think, worked out well, and there was some additional modelling done, a guy from Hydro, I think his name is James Bruce ... did a wonderful job, he was very responsive.
In spite of this influence, some trust had to be placed in the work that had already been done by the FFS committee, and in its collaborative nature.

Community involvement in the FFS was mixed, and not actively pursued by the government agencies and BC Hydro during the initial stages. A committee was struck to develop the terms of reference for the study in 1994, which included a large number of BC Hydro employees, as well as a representative from the DFO and BCMELP. Geoff Clayton of ARMS, who became the only non-government/non-Hydro member of the FFS committee describes the unusual process by which he became a member of the committee.

GC I got to hear of this [FFS] committee, because they were always telling me not to worry, that this [FFS] was going on and I should just sit back and wait for the results. First meeting was on June 21st 1994 ... and I just went down there and said, I'm your community representative on this committee.

(laughter)

JV What did they think of that?

GC And there was some foot shuffling under the table, and you have to understand that this is a technical committee, and this is not a political process, that scientific fact was what they were dealing with. That's fine, I'm not a biologist, but I would just sit back and report back to the community how we were going and if I feel I have something to say I'll say it.

Geoff Clayton's impression of the first few meetings, and the attitude of many of the committee members very much reflected an autocratic image of BC Hydro.

GC [The FFS] was structured with a couple of biologists from BC Hydro, and then Ministry of Environment, DFO, and two engineers from the power supply group at BC Hydro. BC Hydro had very much the up front, autocratic again, patronizing kind of attitude. That's what I read from them.

Even Daryl Fields, one of BC Hydro's own staff who was involved to contribute her economic expertise to the FFS, was seen to be treated very poorly. Because of his fear about the role that economics would play (see section 7.2.2.5), Geoff Clayton was also suspicious of her.

GC I don't think that BC Hydro gave Daryl Fields much respect at all, I mean they cut her off in mid-sentence when they wanted to talk ... and the biologists didn't see her as having an area that they could fit with. I treated her with just a great deal of suspicion, and about three quarters of the way through the meeting, she just slammed her books together and walked out, and I said to myself, well, that's the last time I've seen her.

JV Little did you know.

4 For example, notes for meetings on November 9 and December 12, 1994 indicate that the organizations were represented by the following number of people: DFO 1; BCMELP 1; ARMS 1; BC Hydro 4 (Nov. 9) & 7 (Dec. 12.)
Well, little did I know how much mettle she would have and how much influence she would have in the final outcome.

The DFO representative on the FFS recognized that many community stakeholders were knowledgeable about the river and its history, but indicated that stakeholders may not have had as much to contribute in determining the study methodology.

We included ARMS in the discussions of the technical fisheries committee, but it was the job of the technical committee to present the flows for fish to the stakeholder committee.... The decision that was made by the stakeholder committee was that flow for fish was going to be a benchmark to shoot for.

The conflicts that arose during the FFS process tended to be perceived by BC Hydro representatives as the impatience of groups like ARMS with the lack of results, which was evident in their description of ARMS as an activist organization during that time period (see section 6.2.1.1). BC Hydro representatives also saw the role of ARMS on the FFS, at least initially, as primarily that of an observer.

Initially . . . the set-up people were just doing this, primarily the fish agencies and ourselves.

Right, and then there was ARMS

Initially, there was no real public stakeholder . . . ARMS wasn't really involved, they were more of an outside observer than a participant.

Although the FFS committee was at times referred to as a collaborative group by some members of the ASC, there was also a sense that the participation of ARMS in the FFS was limited to more of an observer role. In other words, while the participation in ARMS in the technical study was certainly valued, some FFS members were did not think that ARMS contributed a great deal to the more technical areas of the study.

The question about the openness of the study to the government agency representatives is a tricky one. For example, Marvin Rosenau indicated that the lack of specific technical knowledge about instream flows and modelling extended to many of the members of the FFS, including BC Hydro and government agency members.

Few of the members of the FFS committee except for BC Hydro really understood the concept of weighted usable area, or flushing flows, none of them understood the scientific components. BC Hydro had one or two other biologists sitting there who didn't really understand it as well. The only two people that understood this habitat suitability index stuff was James Bruce, and myself to a lesser degree. James Bruce understood it far better than I did; he was doing the modelling. But I knew enough of it to be able to drive the issues to ask questions that we thought were important....

From the perspective of James Bruce, many of the government agency representatives did not really have the time to develop a full understanding of the study.
JV... were the fisheries people fairly knowledgeable about IFIM?

JB They had the general idea, but not the in-depth knowledge to actually go out and do it, and pick it apart and understand the nuances. And that was a function of time, not ability. They just don't have the time to do that kind of stuff, there's no-one dedicated to doing any of that kind of work, in the provincial or the federal government.

On the other hand, the government agency representatives raised various methodological questions about the study (see section 7.2.2.1), and tried to push the initial boundaries placed on the study by BC Hydro. Marvin Rosenau describes the role that he played interpreting the study and trying to get a broader sense of what the implications were.

MR What I'd do is I'd take the numbers and I'd turn them this way, and then I'd turn them that way. It's kind of like a Rubik's cube, and you could turn them in a whole variety of different fashions and depending on which way you turned that cube, you'd have a very different perspective on it.... That is basically what I had to do in order to try and get the broader perspective on what these discharges would do in terms of fish habitat.

BC Hydro staff were clearly not comfortable with the way in which the FFS was interpreted. James Bruce linked the way in which people interpreted the technical study to their political, institutional or personal agendas. This comment broadly applies to all stakeholder representatives, including government, community and BC Hydro representatives.

JB As a stakeholder, everyone's going to come to the table with a political, institutional, or personal bias, everyone will have their own personal cry for more water for whatever reason and whatever supports their own particular point of view, they're going to put more faith in.

For example, he felt that because the fisheries agencies representatives were on both the stakeholder and technical committees, they had an advantage in interpreting the information to the stakeholder committee which he did not have.

JB People would be sitting both on the stakeholder committee as well as the technical information committees. And that's one of my biggest concerns on the Alouette, the fact that there was no separation between the two committees... The intent of having a technical committee was to have a forum where the scientific merits, problems, and inferences drawn from the study could be discussed free of institutional bias and that what came out of the committee is an unbiased reporting of the study results that all stakeholders would have faith in. Stakeholders would then be free to put there own spin or draw their own inferences from the data.

The problem in having seats in both committees is that, as a stakeholder, you would put a spin that reflected your institutional bias -- your bargaining position if you will. But because you also sat at the technical committee, it would also appear that you were speaking for the technical committee. This gives the impression that your institutionally biased interpretation is actually an unbiased one and sanctioned by the entire technical committee. To me, this totally defeated the purpose of a technical sub-committee.

The sentiment within BC Hydro was that the study process should have been tightened up by ensuring strict compliance with the terms of reference.
DD DFO, MELP, BC Hydro and ARMS all signed the terms of reference and study methodology for Alouette, and yet, at the end, when everybody wasn’t happy with the results, they backed away from that. And I think there just has to be agreement up front that whatever is agreed to can’t change, no matter what the outcome is. That for this set of water use plans, everybody will be stuck with the result.

Another suggestion was for increased co-ordination between the technical people before the public process began.

DM ... there was more need for up-front co-ordination between the technical people. I think you need to have this technical group be comfortable with the terms of reference for various the technical studies (i.e., fisheries).

On the other hand, other participants felt that public involvement in the technical studies was key. For example, the involvement of an ARMS representative in the FFS was key to building public trust in the study (see section 9.2).

8.5.2.1.1. Independent scientific review

GM ... the review of the research should have had some peer review

Although there was no official peer review of the technical work used by the ASC, the methods of the instream study were reviewed by a Dr. Bob Vadas. The work was paid through a contract administered by Greg Mallette of the FBMP, with the knowledge of those in the provincial and federal fisheries agencies, who supplied copies of James Bruce’s draft technical copies to Bob Vadas for review.

GM In my opinion what happened was, DFO and Ministry of Environment had their own concepts about the flows they needed based on certain curves out of the literature. BC Hydro ... basically produced a methodology that would prove BC Hydro’s point of view, and then, I had the BC Hydro methodology critiqued by a fellow named Bob Vadas, who is now doing work in San Francisco, at the University down there, but he was a post-doc at Environment Canada, and he did his Ph.D. on instream flows.

He analyzed [BC Hydro’s] methodology and he said it was bogus. So, so there was certainly no peer review of the research, and it really was problematic, because it came down to the fact the everybody said they had their own numbers.

Some of Bob Vadas’ comments were released under the auspices of the Alouette River Management Society (e.g. (ARMS, 1995a; ARMS, 1995b)). Many of the comments from ARMS which were critical of the use of the PHABSIM methodology (see section 7.2.2.1) were being developed based on this external review. This may have created a certain level of confusion about the work. For example, a BC Hydro member of the FFS committee did not appear to understand he was being sent comments from an external reviewer, even
through he had written a letter (Bruce, 1995b) in response to Bob Vadas' critiques sent to him by ARMS.

JV Was there any other independent review of the research?
JB Well apparently ARMS had sent some of the reports out for external review, but I never got any comments back.

From the perspective of those within the BCMELP and DFO, the Vadas report provided a backup mechanism. If they had brought it out after the terms of reference had been signed, it would appear as if they had gone back on their word.

MR The Vadas report in my view was kind of a fail-safe mechanism that if it looked like early enough everything was crashing and burning, we would pull the Vadas report out, and say, hey wait a sec, we screwed up big time, we have to go back to the table and re-evaluate some of the methodologies that we used.

But you could only use that far enough in advance ... because everybody had agreed to the terms of reference.... You couldn't pull it out at the last minute, [and say] oh, we didn't get the answer we wanted, bring in Vadas and just, bgghhh, blow it out of the water.... We had to make sure that we understood all of the boundaries in the process, and the Bob Vadas report was one of the boundaries that we had to know coming into the final negotiations.

Knowing the boundaries of the FFS included knowing “if somebody had done something technically wrong, in other words they didn't have enough sample sizes, or they used the wrong habitat suitability index model” [MR]. As well, however, because of the general methodological question Bob Vadas raised, BCMELP and DFO could have brought the report to light if they felt it was necessary — “we could have said, independent of whether we saw we were losing or not, hey wait a sec, we've had this reviewed independently, this isn't going to work, we've got to go back to the drawing board, and retune this up” [MR]. On the other hand, BCMELP and DFO representatives thought that despite the flaws pointed out by the Vadas report and the desirability of additional modeling, the FFS was still defensible.

MR I think despite the flaws that he pointed out, what we could say, still, is that we were on track; we had something there that was going to be defensible in both the public eye and in the scientific community's eye.

SM Cole Shirvell, who's a well known [DFO] scientist with expertise related to instream flow modelling essentially agreed 100% with the critique. . . . I guess the bottom line was that the methodology that was implemented appears to always come up with a fairly conservative flows, which tend to benefit the water user, the hydro facility.

While our scientists weren't prepared to say that the results of the Fish Flow Study weren't valid, they had some concerns over the methodology. They believed that additional methodology should
have been applied, such as the physical habitat simulation model. . . . This would have meant looking at other habitat features, such as cover and substrate.

James Bruce, on the other hand, thought that scientists like Cole Shirvell who criticize IFIM offer no alternative. Thus it is better to have information from studies like the Alouette FFS than have no information at all.

JB Cole [Shirvell's] general perspective on IFIM is that it is unreliable as a habitat predictor and that it should not be used to determine minimum flows. But the question remains, what are you going to use instead? We've got to use something, right? . . . If the objective of the IFIM study is to get a rough idea of the likelihood of finding fish in the general area given a particular flow, then it probably works OK. It gives you a rough idea . . . better having some rough information than no information at all. It will not predict the exact location where you are to find fish. It also assumes that fish production in the river is habitat limited, that the constraint to production is not some other factor such as the lack of nutrients, pollution, the list goes on.

Geoff Clayton of ARMS put some stock in Bob Vadas' criticisms, but, like the FFS, judged that not all of the findings were valid. Bob Vadas made use of Tennant's method, which indicated that mean annual flows below 30% of the original pre-dam flows would result in high impact to fisheries, and flows below 10% would result in tremendous impact. As was previously described, there was some conflict between BC Hydro scientists and ARMS, Bob Vadas and others over the use of Tennant's method (see section 7.2.2.1). While Geoff Clayton recognized that Tennant's method did have some value, local knowledge about the Alouette was also important.

GC I would say [the Vadas report] had very little impact because he was reaching out without the local knowledge, just the North American viewpoint that reductions below 30% would impact greatly. He felt that a reduction to 10% of original flows was a compromise from his position that he could not accept. Of course BC Hydro were saying that there was a cap based on the low level outlet and without spending millions on a whole new process, that was all they could give anyway... Greg and Bob said the process was flawed if it started and ended with a cap....I think in the end, the stakeholders have to weigh it, and I didn’t take a full acceptance of his criticism.

8.5.2.2. Recreation

Although UMA Engineering, the consultant hired to write the recreation study, reported to the ASC some of those sitting on the committee were not particularly happy with the methods UMA used (see section 7.2.2.2). This tends to reflect a lack of responsiveness or perhaps an inability to respond based on limited time and financial resources. On the other hand, as was previously described, municipal and provincial parks representatives did feel that they had significant input into the recreation studies.
Greg Mallette, one of the ASC members, had carried out a study of recreational values below the Keenleyside and Brilliant Dams on the Columbia River, which calculated the number of recreation days for five different recreation uses (sightseeing, swimming, fishing from boat, fishing from shore, boating) in the 80 km stretch of river downstream of the dams (Mallette and Baker, 1997).

GM I’ve even built a computer spreadsheet model on the Keenleyside dams, so depending on flows out of the dam, I can tell you how many recreation days are lost for that day, and I can sum them over the whole season based on flows ... I’ve actually built a methodology to do this which works, and it’s included in the US Columbia System Operation Review. I offered it to these guys, they said, well we don’t have time to do this. So the guy just went and talked to a couple of people. It was done very, very unprofessionally. It was a joke, the whole thing was a joke, it was. It just was a dance.

Not only was he critical of UMA’s methods, he was also unimpressed that they did not wish to build on the method he developed, or take a more thorough approach to studying the recreational resources of the Alouette River. This issue is tied to the question of what role economics was going to play in the ASC discussions (see section 7.2.2.5). Greg Mallette’s recreation model did not require monetization to take place, but was a quantitative model which made economic valuation more straightforward.

But while UMA claimed that the recreation study was based on local information, this contradicted the experience of some other local people (This was noted in relation to flows which would pose a danger to swimming in section 7.2.2.2). For example, flows at which it would be difficult to cross the river with a horse were proposed by the consultants, but were rejected by Geoff Clayton based on his own experience as a horseman.

GC ... UMA talked about the horses ... being able to wade the river at certain flows and not at others. They didn’t have a good handle for the fact that ... [if] you took a horse across the river at 20 cfs [0.6 m³/s, and then took] a horse back across that river at 70 cfs [2.0 m³/s], you may only see five inches increase in depth, it wasn’t going to be a threat to horse or rider....

There was some time spent on horses that I found, personally very frustrating because I’m a horseman and I’ve waded the river many times on horses. I knew from whence I spoke when I said, we’re wasting our bloody time here, talking about something that most people won’t understand unless we clearly relate the change in cubic feet per second to the change in depth. Horsemen will then at least understand the change in depth and equate with that.

8.5.2.3. Flood Control Modelling

Although the flood control modeling was carried out by BC Hydro’s technical staff, some attempts were made to open it up to the ASC. For example, facilitators asked “how big of a flood is a flood of concern? And we picked something that would be meaningful to them,
that was, a flood of the size of the one that had just occurred [in November 1995]" [TM].
Some interview participants felt that this helped to enhance the credibility of the modeling
(see section 9.2).

The flood control issue was partly negotiated outside of the ASC, in a separate meeting
which involved BC Hydro and the mayor and council of the DMR.

RG [The meeting on] flooding was partly informational, and partly working things out with the
municipality, in terms of what they would accept in the levels of the municipal government

DD ... before the [Alouette Stakeholder] committee got going, another group in Hydro had gone to the
District of Maple Ridge and said, we operated according to our procedures, but we can increase
the flood protection.

There were some sentiments in the local community that some of the flooding which had
occurred was at least partly due to BC Hydro's operations. In spite of this perception, the
two groups met and reached an agreement to increase flood protection in the floodplain of
the South Alouette River.

DD We entered into discussions with the mayor of Maple Ridge, and there was agreement that Hydro
would increase the flood protection from ... 1 in 12 years to 1 in 32 years, and we just agreed to
do that, I think it was a reasonable increase in our costs to achieve that. We just voluntarily
agreed to do that, and that position was tabled at the [Alouette Stakeholder] committee, and the
District of Maple Ridge representative was in favour of it, and it was pretty much accepted.
There was very little discussion.

The comments of interview participants tended to reflect the fact that these negotiations
were carried on outside of the ASC, in that many people were unclear as to where the two
flood control alternatives came from. For example, even a member of the DMR Engineering
Department's staff was unsure about how the two different scenarios for flood protection
were decided upon:

JV I'm just wondering how that figure [1 in 32 year flood frequency] got negotiated? Or was that
quite constrained but all those other things, by the recreation ...

LB I'm not sure how that figure was arrived at. The premise was to reduce flooding frequency by one
third or in that range.

8.5.3. Integrating Lay and Expert Knowledge

As was described earlier (section 8.5.1) local knowledge was seen as important by many
participants. On the other hand, a number of other participants believed that the main role
of local participants was to represent a sector of the community and broadly decide which
objectives were important (section 8.5.2). In this form of integration, local knowledge
consists of values, which are used to make decisions based on the results of technical studies, as interpreted by those with more expertise.

On one hand, many participants felt that during the discussions of the Alouette Stakeholder Committee, local knowledge contributed in that it qualitatively altered the technical information.

DM What people had to say did influence the process and the study work. Qualitative information did influence the technical information by modifying the extremes.

On the other hand, the technical study process did not draw on that local knowledge. For example, within the FFS committee, some scientists indicated that knowledge outside of the technical sphere, such as the local history of the process which led up to the study, was not particularly relevant to the technical information they were developing. To carry out the technical studies was a large enough task on its own.

JB I don't know too much about the history that led up to the FFS. My task was to come up with the technical information. There was no need for me to get into the history of the process because it didn't influence what I was supposed to be doing. It's a big enough task in itself just to carry out the technical studies, and to come up with new methodologies that would be acceptable to everyone that was involved in the initial flow studies.

These two solitudes -- local knowledge and technical knowledge -- proved to be frustrating for some participants.

TC I found it to be a hard process and I called it two plates working against each other like on an earthquake. You have people of the heart, and then people of the mind. The people of the mind, the engineering department, who really don't value the answer ... versus people of the heart who care about the answer, in collision all the time, and constantly grating, pushing, and not able to articulate to one another why there's a difference ... I found that to be a tremendous tax because I'm a person of the heart

Tom Cadieux felt that many of these difficulties arose because the Alouette was the first WUP, and that a level of trust had developed between the various parties which will change the dynamics of how the people of the heart and mind will interact around future WUPs.

TC I think that because we were the first, and because the integrity was on the table from everybody that we won something that is now not an issue anymore .... I think the trust is there, I think the genuineness was there, and that the issues are clearer than ever before to the engineering department particularly.

While Tom Cadieux emphasised the evolution that BC Hydro’s technical staff had gone through, which had resulted in a more trusting atmosphere, another member of the ASC
felt that a similar evolution that had gone on within ARMS, in a shift from a purely emotion response to one in which science did play a role.

MM [ARMS representatives] ... in my view, had to make the bridge between their emotional feeling about the river being abused by BC Hydro ... and the science that says this, that or the other.

Other challenges to the integration of lay and expert knowledge in the ASC process included a lack of openness on the part of technical to the involve the public in their studies, the perception that stakeholders will misinterpret technical information for their own political gain. For processes that involve First Nations participants, there are a unique set of challenges to integrating their traditional knowledge with technical knowledge.

8.5.3.1. Challenges to Integrating First Nations Traditional Knowledge In Multi-stakeholder Forums

The traditional knowledge of the Katzie First Nation (KFN) played a role in the ASC, both formally, such as through the previously mentioned formal presentation by their treaty co-ordinator Terry Glavin, and informally through the day-to-day interactions of the ASC. In order to ensure that the knowledge they were passing on was reliable, the KFN representatives organized meetings with elders in which traditional knowledge about the Alouette River was passed on.

RB What we generally did here is we'd have meetings and invite the elders in to talk about things that have been done on the Alouette, the way it used to be, what we did there. We went there to fish, or plants that are native on the Alouette are there, just what we did there, how we used it... Then we would take that information to the committee.

But while this arrangement was used by KFN to allow the knowledge of elders to have an impact on the ASC process through the official KFN representatives, the meetings within the KFN also illustrate some of the barriers to traditional knowledge in multi-stakeholder processes.

It goes without saying that much of the traditional knowledge of First Nations is held by elders. Thus many of the barriers to including traditional knowledge in multi-stakeholder committees are the barriers to the involvement of elders, such as the adversarial nature of multi-stakeholder committees which elders are often not comfortable with. For example, when I asked Rick Bailey if he thought that elders from Katzie could have contributed to the ASC directly, he answered, "I wouldn't let them be subject to that kind of treatment." [RB],
referring to the way that a disruptive older non-native observer of the ASC meetings was treated (see section 8.1.1).

Other barriers identified by Rick Bailey included the fact that individual elders may be difficult to talk to, or may not feel comfortable in divulging information about their culture to those they don't know well -- "One of our elders here won't even talk to us. We have to get another elder there, talk to him and -- once you get him opened up, then it's OK" [RB]. Additionally, because most traditional knowledge is passed on orally, it may be difficult to record as many elders are uncomfortable with being recorded -- "they just clam up if they see a recorder or video camera" [RB].

Traditional knowledge may also be prevented from playing a more important role in multi-stakeholder planning simply because of the loss of traditional knowledge. For example, Katzie treaty advisor Terry Glavin had interviewed Rick Bailey's grandfather in the 1960's. Rick Bailey was glad that this knowledge was available through Terry Glavin, but at the same time saddened because of the loss of knowledgeable elders.

RB [Terry Glavin's] just got a head full of information about our culture. That's a sad thing, that I'm still learning about my culture, and I have to get information from my white friends. I should be looking more to the elders, but the real elders are gone. I mean we're very elder poor here; [the people] we refer to as the elders, they still have a lot of information, but not the information that say, my grandfather would have, grand aunts and uncles.

Part of this loss of traditional knowledge also came through the loss of language. Rick Bailey attributed much of the loss to the residential school experience that many of the elders went through.

RB One of the reasons why we don't know a lot about our culture and language -- I got this right from my grandfather -- in the residential school, if they even heard him speaking one word of our language, he was beaten with a cane, or stick.

KFN is starting a language program in order that people can learn their own language, but because there are only a few native speakers left they are facing many challenges.

A final barrier to the use of Katzie's traditional knowledge is misuse of knowledge by others in the past. Rick Bailey described some research on the Katzie language involving his grandfather that was carried out by a professor of linguistics, Philip W. Davis -- "Then he
[Philip Davis] disappeared. He wrote a book and disappeared." [RB] 5. After Philip Davis moved from the area they had great difficulty locating him and convincing him to share his material with them, although they were eventually successful.

RB We were trying for years to find [Philip Davis], and we heard he was in Rice University in Texas, and we sent letters trying to get a hold of him. No luck. We had a paralegal here doing some work for us . . . she drafted a letter; I don't know how she worded it, but surprisingly we got a letter back. Yes, I do have all the recordings yet, and I'll send them to you if you want them. So we got all these recordings from my grandfather, teaching language.

Thus there are also many barriers not only to integrating the traditional knowledge of First Nations with formal science, but even with cross-cultural sharing of knowledge outside of the community. These kinds of difficulties are certainly not unique to the AWUP process, but are similar throughout British Columbia and beyond.

8.6. Summary

Almost all of the interview participants believed that the ASC was inclusive of a wide diversity of stakeholders, although several additional stakeholder organizations were identified. There were also some open houses carried out in conjunction with the ASC, which drew in a wider cross section of the local community. Many interview participants thought that the open houses contributed to the ASC process by raising public awareness and creating opportunities for interaction with a greater number of people, although a significant number of ASC members did not recall being involved in the open houses themselves. The planning team limited the ability of outsiders to address the ASC to written requests, in order to ensure that meaningful interaction took place with minimal interruption. Some committee members felt that there were cases where this rule was enforced too harshly, and where there could have been some flexibility in allowing non-ASC members to address the committee.

The discussions of the ASC were generally seen to have been open, and allowed all members to participate. However, a number of participants felt that this openness had evolved over time. They indicated that at the beginning of the process, certain key individuals were not permitted to fully express their ideas to the committee; this changed

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5 Thanks to the internet, illusive professors are often easier to track down. Philip W. Davis' website (http://www.ruf.rice.edu/~pwd/) lists Halkomelem (Katzie) in his research interests, having carried out fieldwork from 1967-89. He does not list any publications relating to his Katzie fieldwork.
later in the process, when these individuals were recognized as spokespeople and allowed to speak more fully. Some questions were raised about the ability of the First Nations representatives to fully participate, given the adversarial nature of discussions. However, other participants pointed out that while the First Nations representatives may not have been extremely vocal participants, when they did speak, they had a great deal of influence and people listened.

The ASC process was deliberately planned as a structured process, and some of the planning team expressed skepticism about the ability of participants in multistakeholder processes to design their own process. There was some discussion in the interviews about the relative merits of a structured decision analysis approach, and a recognition that this was an area in which the facilitators had some expertise. Some participants also thought that there was some flexibility within that structure, and that the ASC had some influence over how the process ran. The most prominent issue related to the design of the process was identified by local stakeholders, who felt that the work they had done in creating the Alouette River Management Council (ARMC) had not been recognized during the initial recruitment stages of the ASC process. The planning team indicated they were simply inviting people to the table and following the conditions of the order from government which required BC Hydro to consult certain organizations (or individuals within those organizations). However, several local participants pointed out that it was not the people who were invited that was an issue, but the lack of involvement of the ARMC in the process of recruiting ASC members.

Generally, participants found that the technical information they were presented with was fairly clear and understandable, although some presentations were much better or worse than others. A number of people pointed out that using technical sub-committees to work out some of the details was a good idea, as this meant that the rest of the committee didn’t waste its time in discussions which not everyone could understand.

The ASC was seen to be open to the knowledge of participants, and the local knowledge of various representatives from KFN, ARMS, ARFN, and the DMR was widely recognized as important to the committee’s discussions. On the other hand, the openness of the technical studies to local knowledge varied significantly. For example, the FFS was carried out in collaboration with an interagency committee which ARMS participated in, and interaction also occurred when FFS scientists made presentations to the ASC. The
recreation study and flood protection modelling were presented to the ASC for comments and feedback. There were also limitations to public participation in these studies; in the case of the FFS, some scientists felt that the role of stakeholders was in setting the overall objectives of the study, rather than as full participants of the technical committee. The recreation study, either because of lack of resources or expertise, did not fully address the requests of some stakeholders for a more rigorous study.

While most participants felt that the group had been able to integrate local and technical knowledge, in that the qualitative information had influenced the extremes of the technical studies, there were also challenges. One of the challenges was to integrate emotional knowledge ("heart") and technical knowledge ("mind"), which one participant described as two plates grinding against each other as in an earthquake. Another participant emphasised that this divide needs to be bridged both ways: by scientists acknowledging the emotional side of environmental problems, and local participants recognizing the need for decisions to be based on science. A First Nations representative described some of the unique barriers faced in integrating traditional knowledge into forums like the ASC, which include: (1) the adversarial nature of multi-stakeholder forums, (2) the discomfort many elders have talking to strangers, (3) the loss of traditional knowledge which KFN has experienced through the loss of elders, (4) the past misuse of traditional knowledge by non-native researchers.
9. Building Credibility and Trust

The trend illustrated by the AWUP is a shift of greater responsibility for policy and management of public resources to private and crown owned corporations, with "supervision" by government ministries. Richard Penner described the transition taking place in the way that BCMELP-WMP works with proponents in reviewing water related projects:

RP The responsibility for leading that process through to conclusion is a shared responsibility between the proponent and the regulatory agency. The regulatory agency can't do it all. What has happened over the last number of years is that the proponent is asked to provide more information and analysis on the operation of a system. However, it is important that the information is collected under the direction of the regulatory agency. This ensures that the proponent is collecting the information that is needed for the decision.

He did not think that giving project proponents more responsibility for review processes would make them any less credible from a public perspective.

RP Whether the regulatory agency or the proponent leads the process may not be as critical as ensuring that the process is fair and all parties have an opportunity to be heard. The public wants to be assured that all the issues have been identified, and the decision maker understands their point of view.

But while the public may not understand the bureaucratic structure of the various government agencies involved, the image that they have of an organization has an impact on how they react to that organization. Given that BC Hydro was the lead organization for the AWUP, participants' perception of the credibility of the AWUP process reflected their ability to trust BC Hydro as an organization.

A number of other factors had an impact on the credibility of the AWUP process. These included the credibility the "third party" consultants, who helped to plan, organize and facilitate ASC meetings (section 9.1). The credibility of the technical information, and the technical experts and consultants that were presenting the information to the ASC, was another important factor (section 9.2). The accountability of the ASC members to the process, and to their wider constituencies affected the credibility of the process in the broader political context (section 9.3). Finally, the credibility of the ASC process was also affected by how effectively it made use of time (section 9.4).
9.1. **Credibility of “third party”**

9.1.1. Prelude -- Institutional Source

GC The old axiom of a good salesman is that when the customer comes in through the door, the first thing you have to sell is yourself. And then when you sell yourself, as a very congenial fellow that's interested, and thinks your wife is great and your dog is cute, then you start trying to sell the product. So, with all the skills in the world ... if you're going to be really good at it, you need a charismatic, warm, friendly, but in control, atmosphere about you.

Perhaps more than any other individual involved in a multi-stakeholder process, the third party involved in mediating/facilitating/chairing meetings is the one under the most scrutiny. They are "process salespeople", trying to sell the worth of the process to participants. Not only do they mediate between round table participants, but they are often placed in the uncomfortable position of mediating between the lead organization and the public.

The selection of the consultants to carry out the AWUP was a contentious issue right from the beginning. Daryl Fields describes her initial attempts to present BC Hydro's plans for the AWUP process to the public in Maple Ridge. At that point BC Hydro has requested and received Statements of Qualification from several consultants.

DF We went out there on October 27th [1995], the date is burned into my brain and said to them this is what we want to do, and this is how we propose to do it ... and they said, are you kidding? There's no blinkety-blink way that we're ever going to believe a consultant that BC Hydro brings in. **Huge** amount of distress in the community.... we were basically shouted off the stage ... I don't even think I got through my first slide in my presentation.

So in response to that, we said O.K., here's a list of the people that we have sent out and here are statements of their qualifications and please identify any other consultants you would like considered.... Part of the public said, we want a very specific consulting firm. And when we looked at the qualifications it was kind of like apples and oranges, we were looking for consultants that could bring some qualitative research skills, some value solicitation work ... put some structure around the problem, and the other consulting firm had much, much more talent in terms of impact assessment. They had done public consultation, but it wasn't using the same kind of decision analysis tools as the consultant we wanted to.

BC Hydro sent a letter to various local organizations following the meeting in Maple Ridge (Paddon, 1995a), requesting input on the three consultants who had responded to the request for Statements of Qualification, or suggestions for other consultants if none of the three were acceptable. The result was that UMA Engineering was proposed as an alternative by five groups that responded, and that McDaniels Research was selected by five groups (Paddon, 1995b). Several other ARMC members commented on the process,
but made no recommendations. BC Hydro thus selected a consulting team of McDaniels Research and UMA Engineering, with McDaniels being responsible for facilitating the stakeholder committee, and UMA being responsible for an issues identification report, open houses and some additional information collection (see chapter 5 for more details on roles).

The evaluation of the work done by UMA Engineering was mixed, particularly from some of those same community people that had recommended them at the beginning. On the other hand, while the skills McDaniels Research brought to the process were recognized by many participants, the process by which they were selected was questioned. While stakeholders had some input into the process of selection, they still perceived that BC Hydro had selected McDaniels Research.

GC ... in the end we had egg on our face because UMA -- I don't know what the hell they did.

JV But that was something that some of the community had suggested?

GC Yes, because UMA had worked for the District of Maple Ridge, and they were known in the community and their work was known, and so we felt that they could do the job. I think that [the facilitators] had far better concepts on the process ... but, you can understand that the community was very concerned that BC Hydro had conceivably selected a point of view. There's no way to overcome that unless BC Hydro says, look, we'll collectively plan and select.

There were also disparate interpretations of BC Hydro’s financial backing of the AWUP process. The consultants did not feel that the arrangement had a negative impact on their relationship with the committee: they were being paid by BC Hydro, but they were working for the committee. By being explicit about the arrangement with the members of the ASC, they felt participants were able to put some trust in them.

RG ... our response was, yes we are getting paid by BC Hydro, but really our task was to make the best recommendations we could to the water comptroller’s office. We were asked to lead the stakeholder group, so that the views weren’t our views, what came out wasn’t us, we were supposed to manage and balance the views of the disparate stakeholders. I think by being explicit about stuff like that, and not trying to hide anything, it’s just what it is. Then people could say, yeah OK, does Robin look like an asshole that’s going to say things that BC Hydro wants? Well no he doesn’t, we trust him, so we’ll carry on.

BC Hydro representatives also indicated they tried to show that the consultants were working for the committee. As one representative stated “[The facilitators] were responsible to the group, and I think through our actions we made it clear that that was the case” [DD].

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13 For example, a number of participants had concerns about the quality of their recreation study (see section 7.2.2.2).
A number of participants also indicated that this was not an issue. The facilitators were able overcome any impression that they were "beholden" to BC Hydro.

DM I was not aware and did not hear any concerns. However, as in every process, there is always some concern by someone that whoever pays has a greater influence over the results than those who do not pay (i.e., the participants). In the Alouette process, the facilitators did a good job of trying to represent people's views and they listened well, so it was not an issue.

A number of the participants commented on the difficulties that the facilitators had at the beginning of the process in selling themselves as congenial and neutral facilitators of the process. This mistrust developed out of the way in which they were selected, which remained under a cloud despite the addition of UMA Engineering as a consultant, and the fact that BC Hydro was paying for them.

GC I distrusted them both, I did not have good reports on them ... you pay the piper and you call the tune, and BC Hydro was paying them. We had good reason to be suspicious, BC Hydro had selected them.

JH Initially, one of the issues ... was that they [BC Hydro] hired the two facilitators ... And so it was like, we're going to hire the fox that we're going to have in the chicken house ...

While many participants did agree that the facilitators were able to work for the whole group, one remained firmly convinced that they were working for the benefit of BC Hydro.

GM If I was asked to participate in a Water Use Plan, and he [the facilitator] was participating, I would refuse to participate, because he's biased ... he was there to do BC Hydro's bidding.

Some local participants, such as the KFN representative thought that the fact that they were working for BC Hydro was not really a problem. Another noted that they were aware that BC Hydro was paying for the process and as a result tried to make sure that the process reflected their views as well.

JV Was it also a problem that he [the facilitator] was working for BC Hydro?
RB No, no. We discussed that with BC Hydro, how anybody should be hired.

JV Was there ever a sense that because BC Hydro was paying for what was going on that ... I've got to be careful here ...

LB I understand what you're getting at here. You're getting at the point that BC Hydro paid for the consultant, the fish study, the Denis Russell report and the rest and they had their perspective and perhaps a predetermined agenda. For example, Denis Russell wrote his report on the 1995 flooding with a BC Hydro bias. The group understood the Hydro perspective and determined its own values and recommendations independently.

Others felt that the facilitators lacked neutrality at the beginning of the process, but gained it towards the end of the process. For some participants, this was due to the evolution of
the process, and the feeling within the group that they could accomplish something very positive. Another participant thought that pressure from within the ASC forced the facilitators to become neutral.

MR  ... the internal view was that [the facilitators] were not neutral, or they were not objective at the beginning of the process. But I think they got pressured so heavily by the public, the stakeholders, that they were forced to become neutral by the end of the process. At least one of the facilitators in particular, ended up, I think, becoming a very objective facilitator at the end. But I don't think at the beginning it was viewed that way, by many of the public stakeholders.... [The view was that] they were just on Hydro's payroll and they were just trying to spin doctor a Hydro position.

JH  I think the process actually evolved. I think the facilitators evolved, I think Hydro evolved, and the rest of us certainly all evolved.... I quickly got the impression that ... everybody really wanted to make it work. And that we were also in uncharted territory here ... that something good could come out of this if we worked at it, if we all were people of good faith.

9.1.2. Assessment

Participants gave a wide variety of responses in their assessment of the abilities of the facilitators. Their responses are summarized in Table 9.1, and described in further detail below. Major strengths identified by the participants included the control of discussions by the facilitators, structuring of the decision context, and the positive result they obtained. Major weaknesses included a tendency to challenge at times rather than maintaining neutrality, and a somewhat “academic” and inflexible approach. There were mixed reviews of their ability to ensure that everyone was heard; the uneven facilitation styles between the two facilitators (referred to by one participant as a “good cop/bad cop” routine) was seen in a positive light by one participant, and in a negative one by others.
**Table 9.1. Interview Participants’ Assessment of the Strengths and Weaknesses of the Facilitation.**

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Kept things on track, managed/controlled the discussions.</td>
<td>• Challenged at times rather than maintaining neutrality.</td>
</tr>
<tr>
<td>• Used decision analysis tools.</td>
<td>• Process “too academic” at times.</td>
</tr>
<tr>
<td>• Passed on theoretical knowledge about how to make decisions.</td>
<td>• Lack of flexibility about rules in some situations.</td>
</tr>
<tr>
<td>• Were flexible, or allowed for expression of frustrations.</td>
<td>• Lack of substantive knowledge related to instream flows.</td>
</tr>
<tr>
<td>• Listened well, tried to ensure everyone was heard, balanced various views.</td>
<td>• Report writing could have been better.</td>
</tr>
<tr>
<td>• Ensured that all relevant information was presented.</td>
<td>• May have created a bargaining situation at the end of the process by focusing on only two alternatives.</td>
</tr>
<tr>
<td>• Became more neutral over time.</td>
<td>• Seen as biased and unprofessional by one participant.</td>
</tr>
<tr>
<td>• Overall good performance given the positive result.</td>
<td>• Ignored the views of some, particularly at the beginning of the process.</td>
</tr>
</tbody>
</table>

**9.1.2.1. Strengths**

One of the strengths in the facilitation identified by some of the participants was their ability to control the committee, and to ensure that while everyone had a chance to make their views known, no-one dominated the discussions. This was particularly noted by participants from BC Hydro and some of the provincial government agencies.

DF The consultants didn’t ask for permission, they just got on with it, and the first step is objectives, which basically lets everyone talk about what’s important to them. The [consultants] did a combination of keeping really tight on people, on talking,

**JV** In terms of time?

DF In terms of time, in terms of not letting them go on and on, but on the other hand, didn’t say, we’re going to talk about that later. So... it was actually pretty good facilitation now that I think about it.

GL The consultant was quite strong, as far as controlling the process, and I feel that in that kind of situation it’s required. When you have, I don't know how many were around the table, 12, 15, people ...and of those, probably four or five are the types of personality that are very outgoing,

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14 Some of the key strengths and weaknesses in the facilitation are difficult to separate from the general planning of the AWUP process. As well, some participants were reticent to make strong statements about the weaknesses of the facilitators for fear of appearing to be personally attacking them.
can take over a meeting quite happily. You have to have a consultant overseeing it who does control, or else the meeting will just run amuck and you will go nowhere.

DD There was a tendency for the meetings to get out of control a little bit, and to deviate from what we agreed were the ground rules, and it took a really strong individual to keep things on track.

In spite of the structured approach taken by the facilitators, at some level there was also some flexibility, in that people were able to talk about what was important to them at various points in the process. As another participant described it:

LB Their structure wasn't a tight structure, it was a loose structure, yet they kept us on track, so we didn't get side-tracked too much.

One of the facilitators described how they tried to remain flexible by responding to requests from ASC members.

TM If anybody wanted to do something, give a talk or pay attention to something, we would do it, if it basically kept us on track with those initial set of questions.

JV Right, sort of the objectives of the process.

TM or the steps of the process.

Another way in which this flexibility was seen was in the ability of participants to “vent” or express their views freely, about issues such as the ecological state of the river and the impact of flooding on their homes.

DM I thought it was really good because there had not been any other forums like this where people ... could come and freely express their views.

SM There were people that felt that Hydro had done a great disservice to the river, by reducing the flows as they had.... There was also flooding that occurred prior to the process taking place, that left local residents with damage, and they felt that Hydro was directly responsible.... These problems were aired fast and furious at the initial meetings, and I frankly consider it be an essential part of the process.

FW After some of us ventilated our anger or displeasure at what happened to our own personal property -- once we got that off our chests, ... and tried to get a reaction to the personal devastation to property -- then we could discuss the more objective issues.

Finally, although some participants had misgivings about certain aspects of the facilitation, they also felt that the overall facilitation was good because of the positive results obtained.

MM I've seen better facilitators ... and at some points it appeared as if they were challenging by taking positions, more so than perhaps maintaining neutrality. But ... as facilitators their role is to get all the issues on the table, to get all of the detail required around those issues so that they can be dealt with, and so that negotiation can occur for an end result that’s win-win. I hope that all
parties feel that it’s a win-win, because it’s my view that it is.... For that to have happened, the facilitators must have done a good job.

TCh They did a good job.... Initially, I thought they were a pain in the butt, I thought they were too sticky, but ... they did it right if you look at the end.

9.1.2.2. Weaknesses

JV What was your general impression of their abilities to run the process and facilitate discussion?
DF I know this is a hot topic, let me preface it by saying that I don’t think any facilitator would have come out clean, out of that process. There is just too much antagonism, too many hard issues, too much passion.

As was mentioned in the prelude to this section, a number of people had concerns about the neutrality of the facilitators due to the fact that BC Hydro was paying for them. For other participants it was less of a concern, although many indicated that they were conscious of the arrangement, which led them to carefully ensure that BC Hydro’s position was not dominant.

The representative from KFN felt that facilitators were not sufficiently flexible in dealing with disruptive visitors. Several other participants also thought that the situation could have been better managed (see section 8.1.1).

RB I understand why he was doing things the way he was, but, I didn’t like it, I thought we could still stay within his guidelines, but relax a little bit. I know they were under a timeline, but he was too by the book, too hard nosed.

A concern that some participants had was that the process was too “academic” at times.

GC [The facilitators] had a difficult task, and they did achieve it, and that is the final proof of their ability, it’s just the opening process they didn’t get over the hurdles very easily ... [they] had a bit of an academic process, [they] just spent too much time in front of class in UBC or wherever ... many times we felt we should say "Yes prof"

DM ... one criticism I would have is that we may have been a bit too academic at times We were given lots of information that many people did not understand (at first).

This was balanced by the fact that a number of participants found the knowledge about how to make decisions useful. For example, the facilitators’ description of a way of making decisions which did not require monetizing environmental resources was key to building community trust in the process (see section 7.2.2.5).
Ironically, several of the participants who were knowledgeable about the technical aspects of instream flow studies were concerned about the facilitators' lack of knowledge about the substantive content of what was being discussed and negotiated.

GC One of the things that really slowed the process down was that [the facilitators] had to be educated, they were talking gibberish sometimes, it was just making me want to jump up out of my chair. They didn't use the proper terminology, they didn't understand the mechanics of it, yet they were there trying to help facilitate the education of some of the stakeholders. I felt it very annoying, and so did Greg [Mallette], that [they] had come in there right off the sidewalk without a good understanding of the hydrology.

Geoff Clayton’s concern about the facilitators’ lack of substantive knowledge was shared by Greg Mallette. Greg Mallette was harsher in his criticism, and felt that the facilitators were unwilling to review other work that had been done on Water Use Planning and were unwilling to recognize the expertise he had in the area. In short, his impression was that they felt they knew all they needed to know about the subject.

GM Before you ask me specific questions, I'm going to tell you that the person who BC Hydro hired to run the process was biased and very unprofessional, in my opinion. So, I'll just say that and you can write that in your report.

JV So what was it that made you...

GM come to that conclusion?

JV come to that conclusion.

GM Well I'll tell you why, because previous to getting involved with the Alouette Stakeholder Committee, I had spent four years on the Columbia River System Operation Review recreation workgroup, and had even done some other work for BC Hydro...

In our first meeting I said... we’re talking about doing a water use plan here. I outlined all the work I had done and my expertise and said there’s a lot of stuff out there, are you familiar with this and have you done a literature review? And [the facilitator] said, no I’m not familiar with it, I haven’t done a literature review, but I’ve been working for Hydro for 15 years and I know all the issues.... So, I was trained at university to do a lit review and apply proper methodologies to doing research and all the rest, and [the facilitator], who’s a professor at UBC, wasn’t applying — to me — the most basic concepts of university course material and methodology. So I think [he’s] unprofessional.

Greg Mallette was also unimpressed by the multiple-accounts type approach that the facilitators used to compare the various alternatives. The decision analysis tools which they used were seen as highly desirable by a number of the participants, again mainly from BC Hydro and other BC government agencies (see section 8.3), although some local stakeholders made positive comments about this approach as well.
Many participants noted the different styles of the two facilitators. For some, these different styles complemented each other; for others it appeared that one of the facilitators was more able to remain neutral and helpful.

SM  There were two individuals that ran the process, one of them was much more effective than the other in terms of keeping the peace, remaining neutral, and being helpful. In my view, one of them often appeared to be putting forth their own agenda, and perhaps trying to drive the process in their own direction. So I have mixed feeling with respect to the facilitation.

Another participant described the two roles played by facilitators as a “good cop/bad cop” routine.

JH  I'm going to be pretty candid here and say that to some degree they played the good cop/bad cop thing at times.... I guess I was a tiny bit insulted that I could see the techniques that were being used, but then I thought, they have got to do something with us; they're trying real hard, and they haven't walked out on us yet.... So that was OK, but at times it was a little bit frustrating.

In spite of any weaknesses in the facilitation, almost all of the participants that I interviewed congratulated the facilitators on the work they had done. The facilitators had been faced with a difficult problem, and had developed a process which was better than what there was before.

GC  But I must end with a footnote that I ended up with the greatest respect for [the facilitators] who persevered through a very difficult process and I think they went well beyond what they were paid for, it showed ... a community if not province-wide contribution that they were making in trying to bring forward a better process than what we had, and I think that they are both to be congratulated for doing that.

9.2.  Credibility of technical studies

9.2.1.  Prelude -- Institutional Source

GC  BC Hydro just can't be satisfying the local groups here there and everywhere with water flow agreements that aren't based in science, because it's public funds they're giving away. So I believe that it is justifiable in the proper process, providing that it's done in a fashion that's not only scientifically done, but also seen to be done by the public. [emphasis added]

DD  If I had been somebody, a non-BC Hydro representative sitting around the Alouette table, and BC Hydro on its own had initiated an instream fish flow study, I wouldn't have believed the results.

The second aspect of the ASC which reflected on the credibility of BC Hydro as an institution was the credibility of the technical information. The studies that were perhaps the most controversial, at least during my interviews (recreation and FFS) were paid for by BC Hydro, but both either involved non-BC Hydro people or reported directly to the group (see section 8.5.2). The studies done on power production and flood control were both done by
BC Hydro staff and were perhaps less controversial. This may have been due to the fact that the flood modeling was seen to be more accurate, or at least involved less perspectives than the FFS (section 7.2.2.3), and that the implications for power economics was seen as mainly impacting BC Hydro (section 7.2.2.5).

In spite of this involvement of non-BC Hydro scientists and consultants in the fisheries and recreation studies, there was still a perception that BC Hydro was the source of much of the information.

GC  BC Hydro had the tendency to come forward with the information, and put it on the table. The public is very reticent to accept that there isn’t a conflict of interest in the manner it’s presented, and probably with some good reason. Consequently, it really means that the public have to have a certain amount of expertise in their group selected.

Clearly, not all of the ASC were concerned about this.

JH  I didn’t really care where I got my information. As long as I was getting some good, hard information.

However, when I suggested to BC Hydro’s Daryl Fields that her organization’s financing was a stumbling block to the ASC process, she responded that

DF  ... the alternative was to have little, no or poor information. And the reason I get a little headstrong is because you’re criticized if you do, criticized if you don’t. If Hydro had said, we’re not going to fund this because it’s going to look like it’s biased, then Hydro would get in trouble for not facilitating the process.

She suggested that it was prudent to use existing models, with the caveat that they be justified through processes such as peer review and calibration. She linked the willingness of participants in WUP processes to believe BC Hydro’s information, with the willingness of BC Hydro members to consider the information of other participants.

DF  ... as a taxpayer, I wouldn’t want models to be duplicated. However, I would like BC Hydro to be open. If I were to say, I want that calibrated or I want a peer review, and BC Hydro should be willing to do that, and that’s what BC Hydro did on the Alouette.... On the other side, there’s going to have to be a willingness on the part of other participants to consider that information. For example, it’s incumbent upon BC Hydro to incorporate information that fish experts might bring to the table.

9.2.2. Assessment

While the contribution of the technical studies to the ASC process was widely recognized, there was also considerable controversy and disagreement about some of them. Thus it was important to discover what it was that made the studies seem credible to participants,
and those factors which reduced trust in them. I have focused on the FFS and recreation study, and to some extent the flood hazard modeling because they generated the most interest and discussion during my interviews.

Fish Flow Study

The credibility factors I identified from interviews with participants are summarized in Table 9.2 below.

Table 9.2. Credibility of the Fish Flow Study

<table>
<thead>
<tr>
<th>Factors that increased credibility</th>
<th>Factors that decreased credibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Time and effort put in by lead scientist</td>
<td>• Perception of a conflict of interest with BC Hydro funding the studies.</td>
</tr>
<tr>
<td>• Responsiveness to stakeholder questions, openness of technical information.</td>
<td>• Stakeholders’ lack of understanding of technical issues and methods.</td>
</tr>
<tr>
<td>• Trust by local participants in key “community experts”.</td>
<td>• Concerns raised about the study design by an external reviewer.</td>
</tr>
<tr>
<td>• Collaborative nature of the FFS.</td>
<td>• Methodological concerns regarding suitability curves.</td>
</tr>
<tr>
<td>• Input into the study design.</td>
<td></td>
</tr>
<tr>
<td>• Use of error bars and other indicators of uncertainty.</td>
<td></td>
</tr>
</tbody>
</table>

Many participants praised BC Hydro’s technical staff for the hard work and long hours they had put into the studies. In particular, the work done on the FFS received high marks for its sophistication and effort. The FFS was referred to by one participation as “fairly definitive studies and models” [LB].

MR  ... in my view, from what I can gather, what I can tell, it was the most sophisticated instream modeling exercise that has ever been done in British Columbia. I really have to give credit to James Bruce, I believe he did a yeoman’s effort in terms of that.

GL  Everyone admired the work that the fisheries biologist has done -- the hours that he spent producing that report were phenomenal.

When I talked with the lead scientist on the FFS, he did not feel that the fact that much of the work was being done internally within BC Hydro had impacted the credibility of the FFS. He felt that he had been able to build up credibility by being up front about the uncertainty in his results and answering the questions of people on the ASC. The greatest difficulty he saw was in the ability of the stakeholders to understand technical information.
JV ... to what extent do you think that people were sort of a little bit suspicious of ... the fact that the work was being done by BC Hydro, so it was perceived as biased.

JB I don't think so, ... I didn't get that impression anyways. I was up front with all the uncertainties ... I always put error bars on everything. I went through considerable effort to stress that this is our best guess, given our statistical models, but that there is a lot of uncertainty there. I gave a lot of talks, answered a lot of questions ... I think I built a fair amount of credibility. I don't think I was really hampered by the credibility issue. I think if anything, it was the lack of understanding of the more technical aspects of the study.

Likewise, one of the facilitators affirmed that they had tried to be responsive to the information requests that the committee made, and having the information providers make presentations to the committee. In doing so they facilitated trust not only in the information, but in the process itself.

JV What kinds of things did you try and do to address the question of credibility for this information?

RG Main thing there is, I think, just being responsive, bringing things to people quickly, and as much as we could we tried to get the information providers there so that we were not an intermediary.... I think that direct contact enhanced the credibility of the process and also enhanced our credibility. People could say, we want to talk to XYZ, and the next meeting XYZ were there.

The collaborative nature of the FFS committee was also alluded to as a factor which made the study more credible, although the comments of others call into question its collaborative nature (see section 8.5.2.1).

DF [BC Hydro financed] the fish flow study ... but there was a collaborative group [that oversaw it] ... and that group included Geoff Clayton. So if there's a better model, lets get it out on the table. But at some point, we're going to have to address this money issue, because if you work on a collaborative basis and you have the consultants reporting to the stakeholder committee, somebody has got to pay for it.

For another member of the committee, the credibility of the FFS was also enhanced by the fact that those who were presenting were often members of the group.

MM During the process, there were presentations made by various people from within the group .... And I think that's obviously worthwhile because the research was not then put in question, in other words it wasn't suspect because people who were being asked to enter into discussions around an agreement had a stake in the research that was done.... Had they not had that involvement, it might [have been] very much constantly questioned.

Others commented more specifically on the role played by non-BC Hydro participants in the technical studies. For example, Graham Lorimer of BCMELP-Parks described the involvement and comfort of DFO and BCMELP with the FFS as a key indication to him of the credibility of the study.

GL I felt comfortable that the information we were getting was truthful, that it was well thought out. That say, the fisheries research, I'm not a fisheries biologist, I take fed fish and fish and wildlife's
They spent a lot of time outside that room, reviewing the reports that were presented by Hydro's fisheries specialists, and making recommendations. The computer modelling was worthwhile for them, certainly didn't mean anything to me.

He described the work he and other non-fisheries specialists were doing on the ASC in a managerial light— the committee needed to decide if the recommendations made by the technical experts could be implemented.

GL I wanted to hear from fed fish and fish and wildlife that this is what we want. And the question is, can we make that happen, and it certainly was possible, and I think that their optimum was achieved.

For the non-governmental members of the ASC, Geoff Clayton played a similar role in enhancing the credibility of the technical studies. His role is examined in more detail after a brief look at the credibility of the recreation and flood control modeling.

Some of the factors which negatively affected the credibility of the FFS have already been described. For example, several participants perceived that BC Hydro's financial backing of the process had perhaps influenced the study. Several others were influenced by the independent review of the study methodology by Bob Vadas. The review made some of the technical people reflect on the FFS, and led one participant to describe the study as "bogus" (see section 8.5.2.1). An interrelated concern was study methodology, in particular the selection of suitability curves, which made the DFO and BCMELP representatives somewhat equivocal about the FFS results (see section 7.2.2.1).

Recreation Study

DF BC Hydro paid for the consultant [for the recreation study], ... but the consultants reported directly to the stakeholder committee.... They gave me a copy of the report as I was managing the contract, but all their information went to the stakeholder committee. BC Hydro didn't do that recreation report. They had assistance from Mark Johnston [of BC Hydro, Environment], and we had technical discussions with the consultants in terms of how we could best grapple with this.

For the recreation study, a number of factors which affected the credibility of the study were identified from interviews with participants (Table 9.3).
### Table 9.3. Credibility of the Recreational Study

<table>
<thead>
<tr>
<th>Factors that increased credibility</th>
<th>Factors that decreased credibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Involvement of municipal and provincial parks agencies in the study, reviewing its results, or making presentations to the group.</td>
<td></td>
</tr>
<tr>
<td>• Consultant responsible to the group.</td>
<td>• Perception of a conflict of interest with BC Hydro funding the studies.</td>
</tr>
<tr>
<td></td>
<td>• Lack of rigor, problems with study methodology and assumptions.</td>
</tr>
<tr>
<td></td>
<td>• Did not build on experience on other river systems where extensive modelling has been carried out.</td>
</tr>
<tr>
<td></td>
<td>• Study was being used by some within BC Hydro to resist increases in flows.</td>
</tr>
</tbody>
</table>

Unlike the FFS, the recreation study was carried out by a consultant who had been originally identified by some of the local representatives on the ASC. A number of interview participants, both from BC Hydro and the local municipality, indicated that using this consultant had increased the credibility of the study. As well, BC Hydro representatives saw the involvement of the municipal and provincial parks agency in the discussion as further enhancing the recreation study’s public credibility.

**DD**  The recreation study was done by the consultant that the rest of the committee wanted to retain for the study.... In addition to the study that was done, we tried to go back to some impartial resources.... [For example,] we brought in some of the parks people from Maple Ridge to provide some comments on recreational uses of the river, and provincial parks came and talked to us about recreational use of the lake

One of the largest influences of the recreation study was simply in making committee members aware of the various kinds of recreational uses that were made of the Alouette River. This was particularly noted for those who were not in BCMELP-Parks or in the DMR Parks Department.

**JH**  I was a little bit surprised at the number of people that used the river, in so many different ways.... Everything from steelhead fishing, and big rubber tires floating down the river, and general use of the river; it isn't just in the park.

On the other hand, the same kinds of concerns raised about the FFS in terms of funding and its potential bias were also raised about the recreation study by some participants. Additionally, as was described in section 7.2.2.2, many of the methods used were not seen as appropriate or sufficiently rigorous for the questions the study was trying to address. Finally, some participants felt that the recreation studies were being used by BC Hydro as another means for pushing for less water, which certainly made the information appear to be less credible.
GC  BC Hydro was trying to play a bit of a cat and mouse game. They were pushing for less water, but they were using all the tools in their arsenal. They brought up the issue that we might not represent the full public, and that increased flows for fish could be rejected by the public. That’s why they hired UMA, to come up with a more holistic approach, that included not only visual impacts, but sight and sound, potentially hazardous flows and so on. We had the strong impression that BC Hydro was trying to play that card to limit water.

Flood Modelling

Although there appeared to be much less controversy over flood modeling, this may have been due to the fact that I did not ask enough questions specifically focused in this area.

As was previously described (section 8.5.2.3), the planning team tried to make the flood control modeling credible and meaningful by selecting the flood of November 1995 as a baseline for comparing future scenarios. In addition, the planning team also tried to make the flood modelling credible by asking the BC Hydro technical staff to go through a calibration of the model, comparing it with actual data over the past 50 years, to “show us how close the results that you predict are to the reality. And they also did it for certain flood events, like the big flood of 1995” [TM]. The results tended to be conservative, in that the model indicated that floods would be slightly worse than they were measured to be in the river.

As was previously described, there were some concerns from Daryl Fields that the flood information was presented in a way which was not widely understood, although there was still good discussion on the issues (see section 8.4). As with the fisheries and recreation studies, there were also concerns from ARMS members that too much information was coming out of BC Hydro, which created the potential for bias. Further, because the information was being developed by a single staff person, there was the potential for human error.

GC  The process was good, although I think there was too much information coming out of BC Hydro. It was Tom Bechard that was doing all the number crunching -- an operations engineer-- but it was too much from one person. It would have been good to have someone like Dr. Peter Ward, an independent hydrologist, to cross-check the results. Hydro said, these people are professional. But it’s not as simple as that. Number one, there is the possibility of making a human error, or number two, injecting a bias into it that you’re not aware of.
9.2.3. Emergence Of A “Community Expert”

Perhaps more than any other person, Geoff Clayton's involvement in the FFS and other technical aspects of instream flows provided the greatest credibility factor from the perspective of local community stakeholders. He played the role of a “community expert”, as a person who was sufficiently knowledgeable so as to participate in the technical discourse of scientists, but at the same time who was seen as credibly representing the interests of community members.

GC  Ministry of Environment and the Department of Fisheries and Oceans acted as the credibility factor on the flows, but the community seemed to see me as a person that was looking at this process and saying well, where I'm not a biologist, I had the confidence of the community and because I'm intimately involved here and have been for many years. When I said the process was valid, I think I gave it some acceptance at the community level.

TCh  Geoff [Clayton] has worked very hard, of course he's very knowledgeable, probably the most knowledgeable person on this river that I know of.

TC  There's no better man than Geoff [Clayton], I mean he's just a treasure to this whole side, a treasure to Hydro, because he talks their talk too, which is very unique. You don't snow Geoff too well, he snows them better ... when you're talking about all those flow charts

The role of people like Geoff Clayton was also widely recognized by the ASC planning team.

TM  There was a great unevenness in people's level of knowledge and ... attention to technical issues. One person became sort of a guiding spokesperson for the stakeholder group. And if he became convinced of the merits of something, or the wisdom of something, I think it had a lot of influence on other people's views.

DF  As it was, there was a dependency on key people in the group. For example, I'm pretty sure some individuals would look across at Geoff Clayton, and if Geoff Clayton was happy, they were happy, in terms of believing the information.... I certainly think there were people who didn’t pick up on some of the technical issues, and that’s always going to be a struggle.

Further, some participants saw that the role played by Geoff Clayton and Tom Cadieux as enhancing the credibility of the process in general. This fits with the previously described facilitative role played by ARMS and ARMC (see section 6.2.1).

RG  One of the key things here is that the two people with the possibility for being principal antagonists, both from ARMS, ended up being very big supporters, which took some time. But any stakeholder process where the people who are seen as having the most credibility as the opposition, if they end up endorsing the process, then I think it's a very good thing at building trust.

TCh  They gave a sense of stability to the thing that was very valuable, Geoff [Clayton] and Tom [Cadieux's] efforts, and their knowledge of what existed before. They knew what to aim at, and they just kept punching away at it, that’s how it really got to where it was.
9.3. Accountability

9.3.1. Commitment to the process and each other

The design of the ASC process reflects, among other things, a desire to encourage participants to remain committed to the process. The closed committee may have excluded a few outsiders, but it also created a level of commitment by encouraging interaction between the committee members, which in turn served to create trust and understanding between them.

LB I think it’s important to have the commitment of the participants to the process, as I said before, I went in very skeptical that it could happen, but I think we had people who were committed to making that happen, we seemed to have the right people.

Several members of BC Hydro recognized the commitment that participants made to process, in terms of the time they spent and the misgivings about the process they overcame.

DF In the beginning, I think people were very resistant -- and the first meeting was very, very rocky - - to saying these are the steps we are going to follow. And I give people credit for sticking with it, and taking the risk.

DD We met for three hours, I think, every other week, and I thought that that was a pretty significant time commitment on everybody’s part, and despite that, everybody stuck with it.

Another aspect of accountability was BC Hydro’s commitment to its own process. As was previously described in Chapter 6, part of the history of conflict on the Alouette was frustration with BC Hydro’s lack of accountability to the local community. In contrast, many of the participants indicated that BC Hydro had been accountable to the AWUP process. Two of interview participants described an example of this:

LB When BC Hydro’s manager of generation or something for the area had to go someplace ... we insisted they have somebody of equal level in BC Hydro come and replace him. Because we needed that comfort that Hydro was going to buy in.

TCh [BC Hydro] brought another chap in to fill in for him, and he was quite different. He was a straight up and down guy, he didn’t mince words, he told you exactly what it was, and what he said he honoured, and that made a big difference too.

One participant described BC Hydro’s accountably to the AWUP process as due to the legislative backing of the process, through the Stave Falls disposition order.
TC I see at the other side that the secret to that stakeholder process was that it was legislated. You shall come to conclusion. We need that in every issue in our community today, we need someone behind saying, you shall ensure that all stakeholders are satisfied.

There were differing opinions on the ability of BC Hydro to be accountable to the process in the sense of being able to make decisions at the table. For example, one participant described the ability of BC Hydro representatives to decide at the table at the last meeting of the ASC, when the final agreement on flows was reached.

JH [The BC Hydro representatives] didn’t go and talk to somebody in the tower in Vancouver, they actually did it that night, so that was impressive.

Another participant felt that the opposite was true; that BC Hydro’s representatives had not been able to decide at the table. He also felt that all participants did try to influence those in more senior positions outside of the committee when things weren’t going well or a decision had be made instead of sticking to the ASC process.

MR Another flaw of the process ... is that at both levels, both the stakeholder side and Hydro side ... if things weren't working your way, you just ran off to the executive ....

The one thing that Hydro wouldn't do is that they wouldn't put people on the committee that were decision makers. The people on the committee always had to run back to their senior managers or executive, and that really upset all the other people that were sitting around the table making decisions from a public perspective. Those guys from BC Hydro weren't accountable, and that really caused a lot of hard feelings.

BC Hydro’s resistance to going along with the consensus of all other ASC members to increase flows also made him question their accountability to the process.

MR The fact that BC Hydro would gum up the works at the second to last meeting was exasperating. Everybody around the room essentially agreed that full pipe was appropriate except for Hydro who was the one holdout.... If everybody agrees to this except for the guys that are going to lose, what is the point in all the effort in undertaking this sort of thing?

On the whole, however, BC Hydro was seen as accountable to the process, particularly due to the fact that they have since implemented the terms of the AWUP (see section 10.2).

9.3.2. Accountability of participants to constituencies

The accountability of the ASC members to the constituencies that they were supposed to be representing is not well characterized by my study. Because I focused on those directly involved in the ASC instead of the general public, those who could really judge the
accountability of participants were excluded. Nonetheless, I believe that several insights can be gained into the potential strengths and weaknesses of the AWUP, which may provide a starting point for future research.

Some interview participants indicated that various organizations, such as ARMS, BC Hydro and the municipal council were trying to remain accountable to their members, and to facilitate input from the wider public, which was aided by the coverage received in the local media.

JV  ... Do you think that members of the stakeholder committee tried be accountable to their constituencies?
GC  ARMS was trying, BC Hydro was trying through their open house. The press was following the various issues ... the municipal council discussed the WUP and did sign off on the WUP.

DM  There has to be confidence that the people at the table actually represent the views of the group they are speaking for. As far as I could tell there was good communications from the table to the different “constituents” and that information was flowing well.

Participants representing organizations in which formal and informal links already existed between themselves and those they were representing tended to give more concrete examples of how they tried to remain accountable. For example, Rick Bailey indicated that KFN would carry out meetings with their own people in which elders would share their information, which would then be brought to the ASC (see section 8.5.3.1).

In contrast, while some of the participants representing more loosely bound organizations indicated that they were trying to represent the interests of their constituency, the mechanism for their representation and accountability was less concrete. For example, the BCMELP-Parks representative felt that he was representing the interests of recreational users of the provincial park on Alouette Lake on the ASC, although he did not communicate with any organizations representing recreational users about the AWUP.

GL  The [people] who use the reservoir for recreation, ... basically we were representing them, Parks were representing them.
JV  And did you hear from people ... or did you consider that more in the back of your minds?
GL  It was always in the back of our mind, that's our role to look after their interests.
JV  Right, but there wasn’t like an organized group?
GL  No.

In one case, concerns were also expressed about the ability of one member of the committee to ensure that she was representing her organization, rather than simply her own personal interests.
GC  ... the engineer from the District of Maple Ridge, she was there representing the engineering department of Maple Ridge and yet when it came down to some of the end analysis that she was taking from the process, she freely admitted that what she was giving was a private point of view. So I think that, in essence, that in the future, the people that are at the table really have to look at the fact that they're not just there representing themselves. They really have to understand that they have the responsibility of a constituent, whether it be an agency, whether it just be the community at large, or whatever. They don't have the luxury of a private point of view otherwise the stakeholder process doesn't work.

Activities such as the open houses, to which the general public were invited, were potentially another way of making the ASC process accountable to the general public. A BC Hydro representative described how they tried to involve ASC members in the open houses.

DD  We tried to be careful in terms of chairing the open houses -- when questions came up -- to make sure that the committee was answering the questions, and it wasn't BC Hydro answering the questions.

This mechanism was seen as useful by some participants. On the other hand, other participants either did not recall or were unaware of the existence of the open houses. This indicates that those participants did not view the open houses as a serious vehicle for creating a link between themselves as ASC members and the wider public (see section 8.1.2).

One participant described an experience he had after the ASC process in another area made him realize that those outside of multi-stakeholder processes are often excluded even if someone is representing their “interests” at the table. It made him question the whole concept of multi-stakeholder processes carried out in combination with open houses.

GC  I had something happen to me the other day that put me on the other side of the fence. There is a lake in the interior which I value very much ... I was out there recently and found there was a clearcut on the viewscape, and when I talked to the resort owners, they were appalled and outraged and said that they had not been consulted. Because of my experience with this kind of thing, I said that I would do a bit of investigation.

After calling the Ministry of Forests in Victoria, I was routed to the head forester in Quesnel, who has independent decision-making power over this area. I was told that in 1994 there had been a Cariboo land-use stakeholder process, and that representatives from all the sectors -- tourism, ranchers, loggers, chamber of commerce, and so on -- had been involved, and that they did reach consensus, and that this viewscape was not considered to have significant value to set aside from forestry. This was interesting, because the resort owners had been involved through ownership of their establishment since 1991. I said that was a flawed process because these resort owners had not been consulted.... I have yet to have anyone say that there was a full investigation of the unique aspect of that viewscape. There was a lack of a clear record that people who were
stakeholders consulted those people directly affected by the spoiling of that viewscape — does a public meeting achieve that?

Although Geoff Clayton clearly felt that efforts had been made on the Alouette to remain accountable to the wider public, his experience raised some doubts about how effective it had been. In particular, he was concerned that open houses may not be a sufficient means for consulting riparian landowners about WUPs (see section 8.1.2). At least one of BC Hydro's staff also had concerns about the effectiveness of the ASC member's representation of their constituencies.

DF I think one of the things that wasn't done effectively was the members effectively and fully representing their constituencies. Some members with a well defined and organized constituency did fine, but overall, we collectively could have done better. And what I mean by that is not only sending information out but bringing information in.

She described an alternative model they had been thinking of using, which would involve structuring a series of sub-committees which people on the committee would be responsible to. These sub-committees would be like nodes around a central committee, which she felt would be "a much more structured or a much more effective mechanism for involving a broader group of people" [DF]. They also have some concerns that facilitating this accountability more overtly may lead to the perception of manipulation, although she felt that there was the potential for facilitating communication between committee member and constituency.

DF If you think about enhancing the committee members' responsibility as representatives of their constituency, and improve the mechanisms by which that happens ... that's tricky for BC Hydro to do, because then it looks like you're manipulating the constituency relationship. So there's a fine line the proponent has to take. But we did that with the 1995 Integrated Electricity Plan and it worked quite well. We facilitated conference calls and things like that, so that committee members could represent their constituencies more effectively.

9.3.3. Accountability between technical studies and process

As was described in the sections on the methodology (7.2.2) and credibility (9.2) of technical studies, some of BC Hydro's members were concerned that the FFS were not being held accountable to the original intent of the terms of reference. They felt that perhaps some FFS study members had not taken their responsibility seriously.

On the other hand, the members of the FFS committee that questioned the results of the study did not feel that they were breaking the terms of reference, but rather that they were adding additional information by looking at different suitability curves and other additional
modeling. A previous section (8.5.2) which described the openness of the technical studies began the discussion on accountability. The discussion continues in section 10.1 on the consensus decision making process, which describes the various interpretations of this debate in the context of how the committee reached an agreement on flows.

9.4. Effective Use of Time

DM If I was asked as a private individual, to participate in a process like this, I would need to know that the effort that was about to put in was going to have real results. Otherwise I would question the value of my participation.

Time was a key factor for many ASC members in describing their satisfaction and frustration with the way the committee functioned. Some of the key successes and difficulties identified by participants are given below in Table 9.4. Key successes included the expansion of time limits and meeting times when it was clear that the committee needed more time for discussion. This allowed for time to be spent by participants in expressing their frustrations, and for learning to take place.

Key difficulties included the burden of volunteer ENGO organizations who invest time to raise awareness of issues but have few resources to do so, often resulting in burnout. As well, there were some frustrations about the process, especially in the early stages where it was felt that little progress was being made towards the improvement of the Alouette River. The second greatest difficulty was the meshing of the timelines of the fish flow study and the ASC process. There were also a number of other issues connected to how time was managed, such as the role of those outside the stakeholder committee, the discussion of hazards of high flows which was not seen as relevant by some, the difficulties in communicating the information clearly to all participants and the non-consensus on certain issues related to the water licences. These are discussed elsewhere in more detail (see Table 9.4 for section references).
Table 9.4. Assessment of the Use of Time in The AWUP Process

<table>
<thead>
<tr>
<th>Successes</th>
<th>Difficulties</th>
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</thead>
<tbody>
<tr>
<td>• Time spent at the beginning allowing participants to express their frustrations</td>
<td>• Frustration about competence and use of time in the process</td>
</tr>
<tr>
<td>• Time spent educating people around the table, and learning from other participants — “we spent a lot of time in the process learning ... which helped come to the consensus in the end.” [LB]</td>
<td>“I'm trying to maximize every moment so that I can keep everybody effective, so the pressure and tension is on me big time and here these guys are just fumbling” [TC]</td>
</tr>
<tr>
<td>• Expansion of time limits when more time was needed</td>
<td>“I'm tired of these damn meetings, let's get something done here, we want some damn water back in the river” [RB]</td>
</tr>
<tr>
<td>• Setting of a time limit, even if there was some flexibility about it — “It was good to have an endpoint. If you do not have this a process can go on and on and on and issues are not necessarily dealt with because there is there is always another day to talk.” [DM]</td>
<td>• Cost to volunteers from ENGOs in time spent raising awareness and ensuring issues are dealt with — “you can't depend on the society because it's all volunteer time.... I think you can still work towards a sustainable model, and that's what I'm working on. What is the sustainable model? Right now the council does not have it. It's held together by us.” [TC]</td>
</tr>
<tr>
<td>• Short time frame of the ASC process resulted in:</td>
<td>• Short time frame of the ASC process resulted in:</td>
</tr>
<tr>
<td>Challenges in meshing of schedules for technical studies and ASC process.</td>
<td></td>
</tr>
<tr>
<td>Some difficulties in making the technical information understandable (see section 8.4)</td>
<td></td>
</tr>
<tr>
<td>Non consensus on some issues due to time constraints (see section 10.2)</td>
<td></td>
</tr>
<tr>
<td>Limitations in the ability of people outside the committee to be heard (see section 8.1.1)</td>
<td></td>
</tr>
</tbody>
</table>

The relationship between the time frame for the FFS and the ASC process was an issue of some interest, particularly to those involved in the FFS. The Stave Falls Powerplant Disposition Order stated that the AWUP (then called an operating plan) was to be implemented by May 31, 1996 (Edwards and Cull, 1995). Because the FFS was not completed by March 31, 1996 as specified in the Disposition Order, BC Hydro requested an extension of the timelines to September 30, 1996 (Costello, 1996). This provided some extra time for the FFS to be completed, although there were varying interpretations as to whether it proved to be enough.

Members of the FFS team described the difficulties they saw in the meshing of the two time schedules.

JB If you're going to do this consensus type work, you've got to first define the issues and come up with a set of objectives, and then collect the information that's pertinent to the issues. Then with
that information, assess trade-offs, and come up with some recommendations. But the thing is, to come up with the information that allows you to make the decision based on objectives or issues takes time. You can't just go out in two days and collect information, the instream flow study took two years to do. They're not quick and dirty little studies.

SM The water use planning process rushed the fish flow studies a bit, because all of a sudden we had to work towards some new timelines. . . . We were plugging out data fast and furious and then trying to interpret it and make decisions in a fairly short period of time, whereas under the previous technical study process there might have been a more reasoned time frame to work out some of our differences, or to carry out additional work. Having said that, I am not sure that the results would have been significantly different.

MR Because we were under such tight timelines, James [Bruce] would be just busting his butt until ... midnight. Then we would get the data at noon the next day and try to make sense of it -- most of the guys didn't have time to be able to do that, so that was another flaw in the process.

... Because we had such tight, tight deadlines, I'd be driving to the meeting and punching data in my calculator on the car seat and doing analyses ... because I'd only received the data an hour or so before the meeting was to start.

One of the BC government representatives involved in water use planning policy described what they were trying to do as developing the level of information required to make the decision.

DM We were trying to balance the desire to collect an exhaustive amount of information -- that would take us forever to collect -- with gathering just the right amount of accurate information to give everyone comfort that the outcome and measures that we ended up using were good enough to allow us to evaluate those options.

For example, what the facilitators hoped to gain from the experts was their best estimate of the results, even if there were some technical details to iron out. One of the facilitators described this as a difficult thing for experts to do.

RG Scientists, fisheries biologists ... don't like to voice information until they have a lot of confidence in the models. And given that we were a parallel process to an information modelling process, in fisheries, we were basically asking these guys, give us your best estimate and tell us what you think and that's something that's very difficult for any type of physical scientist to do.

Those involved in the FFS identified a number of constraints to making preliminary judgements about the study. The studies were complex, taking several years to carry out the field work and modelling. As well, the study involved various organizations which had different interests in the study, and required time in order to build up understanding between those organizations. Additionally, the process of interpreting the studies was not seen as a linear one of making a best guess which can be improved over time, but as an
interpretive process in which various perspectives could be taken on the study results resulting in radically different conclusions. For example, Marvin Rosenau of BCMELP emphasised the importance of spending time on re-examining the results of the study, which he compared to turning a Rubik’s cube — “depending on which way you turned that cube, you’d have a very different perspective on it” [MR].

Another constraint, identified by James Bruce of BC Hydro, was that many of the government agency people did not have the time to be deeply involved in the study. The agency staff were limited in the time they could spend analyzing and critiquing his results, but were even more limited in the time they could spend in field experiencing the range of conditions in the river firsthand.

JB . . . Some people would come in on a particular issue, but would only have an hour to prepare for it, and make decisions. They haven’t got a chance to go look at the river, or if they do, it’s a quick tour over two hours. I gave a lot of quick tours, but the thing is, it was always at a bridge, where you could drive to it, quickly you put your waders on, walk up and down a little bit and then head back to the office for another meeting. Well the thing is, that part of the river was probably not representative of the river as a whole. You miss so much, especially when you’ve got 16, 20, 30 kilometers of river.

On a positive note, Drew Dunlop (BC Hydro) noted that the fact that the FFS had been going on well before the ASC was an advantage that many future WUP process will not have.

DD One of the advantages that we had at Alouette was two or three years before we started the Alouette committee meetings, there had been agreement between BC Hydro, DFO and MELP and ARMS, I guess, because Geoff Clayton was involved, ... on a terms of reference for a study of fisheries resource in the South Alouette River.

In addition to the concerns raised about the timeframe of the FFS, some other issues were also of concern to other participants (Table 9.4). For example, there were some concerns expressed that the lack of time made it difficult for presenters to make their information clear and understandable to the ASC. Some participants felt that this problem worked itself out as the process progressed.

JH At first I think there was a bit of hurry up, we’ve got to get this done and that might have been at the expense of the education part of this process. I don’t think that it turned out that it was, and I think people sort of realised that this was something that couldn’t be rushed and so it worked out.

An additional concern was that there was some compression at the end of the process, in that a few issues were left unresolved (see section 10.2).
TC I think it was a little too compressed, and that we never really did really finish the process. I’m still not satisfied that although we verbally agreed, we’ve never in the written form ever totally agreed. I think there are some things to still work out, and I’m hoping Hydro gets back to me personally on that issue.

9.5. **Summary**

The facilitation of the ASC received mixed reviews. Some participants had concerns about the neutrality of the facilitators – one individual to the point that he believed the facilitators were working to BC Hydro’s advantage, not the group’s. Others sensed neutrality was a problem at the beginning of the process, which improved as both the facilitators and ASC evolved. Concerns were also raised about the substantive knowledge of the facilitators related to instream flows, and their flexibility in dealing with challenges to their meeting or process structure. Participants recognized that the facilitators faced a difficult challenge, and that the ASC process was far superior to anything that had preceded it on the Alouette.

The credibility of the technical studies was also of a mixed nature. For example, the credibility of the FFS was enhanced by factors such as the quality of the study, its use of uncertainty, the responsiveness of scientists to stakeholder questions, and the involvement of government and community representatives in the study design. On the other hand, some participants cited the perception of a conflict of interest due to Hydro’s funding and implementation of the study, methodological concerns, critical comments by an external reviewer, and the lack of understanding of technical issues as factors that decreased the credibility of the study. Similar credibility factors were described for the recreation and flood control studies.

The commitment of ASC members to the process was widely recognized by interview participants. Many interview participants felt that BC Hydro specifically had a strong commitment to the process, although a few people identified instances where they felt this had not occurred during the decisions making stages of the process.

Participants gave some insights into the accountability between the ASC process and the wider community. They described a number of activities which enhanced that accountability, such as the open houses, the involvement of the media, and meetings held within the communities represented by stakeholders (e.g. KFN, ARMS). On the other hand,
in more loosely linked communities (recreational users, riparian landowners) the mechanism for representation and accountability was less concrete, and some participants felt there could have been improvements in this area.

Finally, the use of time in the ASC was a factor which connected a number of other criteria. Participants described key successes, which included the expansion of time limits when the committee indicated it needed more time for discussion, and the “business-like” or time-efficient approach of the ASC process. However, some community participants described frustrations with the efficiency of the process, particularly during its beginning stages. The second greatest challenge related to time was the meshing of the timelines of the FFS and ASC processes, particularly from the perspective of the FFS committee members who thought that they had not been allocated adequate time to review study results and coordinate between themselves before making presentations to the ASC.
10. Performing the Decision

JH We went through the, here we are, we're wonderful and we're going to do this in two meetings stage, through the learning stage, through the negotiating stage.... And then finally the decision stage, which was just almost like a moment in time.

In spite of the various kinds of knowledge that were developed and made use of in the ASC process, the committee still faced some relatively difficult decisions. Although the final decision making stages of the process took up only a couple of meetings of total of 15, there were some subtleties in how the decision evolved (section 10.1), particularly the decision related to base flows in the Alouette River. The package of decisions made by the ASC related to operation of BC Hydro's facilities was not the only outcome of the process. The implementation of the AWUP is assessed in section 10.2, as is the new institution responsible for long-term management of flows in the river, the Alouette Management Committee (AMC) (section 10.2.2).

10.1. Consensus decision making

10.1.1. Water Use Plan

The decisions made by the Alouette Stakeholder Committee are summarized in Table 10.1. Many of the decisions were made without too much difficulty -- most were seen to be resulting in significant benefits, and were not predicted to result in major cost increases to BC Hydro. These included decisions to implement flushing flows to clean substrate habitat, and change the operating rules of the facility to increase flood protection. Learning and adaptive management was implemented through the creation of the Alouette Management Committee (see section 10.2.2)
Table 10.1. Areas of Agreement by ASC

<table>
<thead>
<tr>
<th>Issue</th>
<th>Description</th>
<th>Power Costs</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flushing Flows</td>
<td>Short periods of high flows on a four year cycle, with flexible timing.</td>
<td>$2 - $28 k/year</td>
<td>Accept</td>
</tr>
<tr>
<td>LLO Expansion</td>
<td>Increase of base water flows above the capacity of the LLO would require expanding the current facilities.</td>
<td>$700 - 1055 k/year, plus capital costs of $3 - 6 million.</td>
<td>Reject</td>
</tr>
<tr>
<td>Base Flows</td>
<td>Fully open LLO year round except as may be required for maintenance or as agreed to by the Management Committee</td>
<td>$270 - $405 k/year</td>
<td>Accept</td>
</tr>
<tr>
<td>Flood Protection</td>
<td>Explicit rules emphasizing use of adit and providing protection against floods about 2.5 times better than formerly (from 1 in 12 years to 1 in 32 years).</td>
<td>$15 - 25 k/year</td>
<td>Accept</td>
</tr>
<tr>
<td>Learning and Adaptive Management</td>
<td>One license held by BC Hydro with a Management Committee for fisheries and riparian wildlife.</td>
<td>$50 k/year for monitoring.</td>
<td>Accept</td>
</tr>
<tr>
<td>Ramping Rates</td>
<td>To be defined by the Alouette Management Committee.</td>
<td>N/A</td>
<td>Accept</td>
</tr>
<tr>
<td>Power Production</td>
<td>Limits as imposed by decisions outlined above.</td>
<td>$287 - 458 k</td>
<td>Accept</td>
</tr>
<tr>
<td><strong>Total Cost of Implementing AWUP</strong></td>
<td></td>
<td><strong>$337 - 508 k.</strong></td>
<td></td>
</tr>
</tbody>
</table>

Adapted from (Gregory and McDaniels, 1996), Tables 12 & 13. Costs in 1996 dollars.

The issue which proved to be the most contentious was the one which was most costly in terms of lost power production -- the release of base flows into the South Alouette River through the Low Level Outlet (LLO). Although general agreement had been reached not to expand the LLO at the present, there was disagreement about how much water should be released from the LLO. BC Hydro representatives felt that 2.0 m$^3$/s would be sufficient, while all of the other stakeholders argued that fully opening the LLO was justified, which would result in average flows of approximately 2.7 m$^3$/s.

In part, this disagreement hinged on differing interpretations of the fish flow study. Many of those within BC Hydro supported their initial conclusions that flows of 1.0-1.5 m$^3$/s would be optimal for most fish, which led to their support for a LLO release of 2.0 m$^3$/s. Other ASC members felt that that optimal flows would not be reached until far above the capacity.
of the LLO, based on additional fish habitat modelling carried out using alternative suitability curves.

MR At the very last meeting, the fisheries agencies and myself probably took the hardest line, that since you're not going to come anywhere near reaching optimum fish flow discharges at full pipe based on the Fish Flow Study, why would you want to go anything less than full pipe? At the second last meeting there was complete consensus that we should go to full pipe year round, based on the suitability of use and the weighted usable area for both rearing and spawning ... with the one exception, that being Hydro. Hydro refused to accept that these flows were appropriate.

There are various approaches to tackling this disagreement. One approach suggested by the facilitator was to assume that the two modelling results were simply different scenarios, that neither was necessarily right.

TM There were kind of two competing sets of data that one could use to estimate some particular relationship, that I think had to do with use of habitat of some kind, or survival of steelhead. In essence, Hydro argued for one set of data, and all of the “fish” stakeholders argued for another set of data that in essence showed less benefits at low water. We tried to make the point that probably neither of these is per se right. I mean, what we want to do is kind of consider that these are various scenarios, there may be other scenarios too.

While this may have been successful in calming the debate and create more even-handed choices, it did not provide convincing information for making a choice within the range of possible values suggested. One of the tools participants used was risk averseness.

For example, BC Hydro participants were less averse to environmental risk, and tended to take a strategic approach to the uncertainty involved in the FFS modelling results. Because of the uncertainty involved in the potential benefits of additional water for fish habitat, they argued that it would be better to stick to flows that were certain to provide benefit, and then increase flows at a later date if monitoring indicated it was beneficial.

DF Hydro wanted to stay at 70 [cfs], and I actually supported that personally from a resource economics perspective because I wasn’t convinced that the incremental dollars from 70 to 100 [cfs, or from 2.0 to 2.8 m$^3$/s] were supported by the fish numbers, given the uncertainty in the fish numbers. And I personally think, and this is Hydro at this point as well, preferred to have seen 70 [cfs] as appropriate, and then leave it to the Alouette Management Committee to come back with another recommendation in the next review period.

On the other hand, many of the other ASC participants argued that it was the uncertainty in the results (with optimal flows anywhere from 1 to 8 m$^3$/s) which led them to favour higher flows, using a precautionary type approach.

_Science has given us the direction now let’s get on with it, and if we err, then let it be on the high side for the safety this represents._ (Clayton, 1996b)
Marvin Rosenau suggested a few other reasons which he felt were convincing, including the cost of the habitat if it had to be created in other ways (see section 7.2.2.5), the minimal cost to BC Hydro, the agreement among all non-Hydro stakeholders, and the possible hesitancy of Hydro based not on the implications in the Alouette but its strategic implications elsewhere.

MR At the second last meeting, the whole thing crashed and burned, and that’s when I made my infamous swizzle stick speech. I think I was the last person to talk. I said, this is crazy to not get an agreement, for only an extra 30,000, 40,000 dollars. I said, in the top floor of Dunsmuir, they spend more on swizzle sticks in a year than BC Hydro wants to spend on your valley for fish. I said, this is a strategic issue, it’s strategic in so far as it has potential impacts to Hydro far beyond the Alouette watershed, whether it be Cheakamus, or Campbell River, or some of the other streams where we’re negotiating instream flows on.

Although all BC Hydro members that I interviewed continued to believe that 2.0 m$^3$/s was the optimal base flow, at the final meeting of the ASC they agreed to open the LLO fully. I asked them why they agreed to the higher flow release.

DF In terms of going to 100 [cfs, 2.8 m$^3$/s], I think everybody wanted to get to consensus, because there are bigger issues at stake, and Hydro was conscious that they need to build and maintain public support, and that this was a very unique situation.

Drew Dunlop, one of BC Hydro’s representatives on the ASC, also suggested that BC Hydro’s acceptance of “full pipe” base flows was facilitated by the fact that the Alouette was the first WUP, which needed to be resolved in order to move forward with water use planning in the province.

DD In the end, we decided to accept the changed terms of reference for Alouette, because Alouette was the first water use plan, and we thought at the time and I still think it was the right the decision, but it was important to come away with an agreement on Alouette. Had we not come away with an agreement on Alouette ... it would have been a huge step backwards in terms of water use planning elsewhere in the province, but there isn’t the rigour in the Alouette Water Use Plan that there should have been.

An additional factor which was cited was a compromise on flushing flows. The ASC was willing to be flexible about the time the year flushing flows were carried out, which reduced their cost significantly.

From the perspective of someone who felt that flows above the capacity of the LLO would be beneficial for fish, there were also good reasons why to settle for “full pipe” flows, at least at the present.
MR  This is maybe kind of cheating, but in our heart of hearts, we felt that probably far more water than what we were going to get out of the full pipe would provide better benefits for fish. But we would accept full pipe at this time because it was substantially more than we had had historically, and we thought if we monitored it, over time, and we could demonstrate that it produced fish in abundance, that we would be happy with that for the time being, and then the next generation could negotiate a pipe around the dam.

Another participant was more critical of the final decision. He felt that although a consensus had been reached, it was not a wise consensus (see section 8.3).

GM  It came down to the fact the everybody said they had their own numbers... The stakeholders said, well we want full pipe, and Hydro says, we don’t want to give you full pipe. It was a joke.... Like I say, everybody got what they wanted out of it, so therefore it worked.

This concern that a consensus had been reached, but that it had not been based on reliable information was echoed by James Bruce, the lead scientist on the FFS. As was previously described (section 8.5), he was concerned that the FFS had been interpreted in a way which reflected institutional biases rather than biological reality.

Geoff Clayton of ARMS gave a somewhat less cynical interpretation of how the differing interpretations of the study came together. While he recognized that the political process played a role in determining the flows in the Alouette River, he also suggested that the FFS did play an important role in setting the upper boundary on possible base flows.

GC  There are people within BC Hydro that feel that this [FFS] was completely disregarded, that the political process was what drove it in the end and directed the final number, therefore they wasted their time and money on this. I don't believe that, I had said, and there was others that said in the room, and Dr. Marvin Rosenau still believes that this would have been a better river at 250 to 300 cfs [7.0 - 8.5 m³/s]. That's not a wild eyed viewpoint, that's a viewpoint of someone that's worked in the field as a biologist for 15 years

....

Now, in order to settle at 90 [cfs, 2.6 m³/s], we were influenced by the fact that there wasn’t hard proof at that point in time that the percentage of habitat brought in would dramatically increase by bringing above that, based on their instream methodology. So they got good bang for their buck, in my estimation because it did undercut some of our enthusiasm to continue to push for more.

When it came to making a decision based on this mixed bag of information, those involved in the FFS weighed the pieces of information differently, depending on their judgement of the quality and credibility of the work. Also important was how they perceived other organizations would respond.

GC  If we had pushed to 1/3 of flows, I firmly believe that BC Hydro representatives would have gone back and had a high level meeting within BC Hydro, and discussed whether it would be better to
walk away from it [i.e. not generate power on the Alouette at all]. That would have put the cat among the pigeons. Because the District of Maple Ridge would not have accepted the responsibility for flood control. And it’s a balance, because they’re there to generate power.

Thus information used in planning was seen in less of an instrumental light, where the results of science are converted directly into policy. Rather, the information was influential, but there were other factors to be taken into account as well.

While this debate over whether 2.0 or 3.0 m$^3$/s was optimal for fish was important for many of the ASC members, it was not seen as crucial by all of them. As was described in section 9.2, a number of people trusted others to make some of these technical judgements for them. Other participants were not as aware of the diversity of interpretations of the FFS, and felt that study had supported the decision of the ASC to fully open the LLO.

LB the work that James Bruce did support having it [the LLO] open, as far as I can tell.

Almost all interview participants gave positive comments on the resulting agreement on flows, which several described as a “win-win” [MM, GL]. BC Hydro’s move towards the position of the rest of the group was also seen in a very positive light.

JH Hydro came to the rest of the group more than the rest of the group went to Hydro, because the rest of the group had sort of decided -- again it being an inexact science and all the rest of it -- but they had decided what they would feel comfortable with, and Hydro had to make more of a move in that direction then. And in that regard, I was impressed.

GC So I have said this a time or two that if BC Hydro addresses all of their water use issues in the way that they have on the Alouette, they will be one of the environmental champions in this province. This is in reference to the outcome, which addressed long standing conflicts related to flows and stewardship on the Alouette.

10.1.2 Qualitative Outcomes of the AWUP Process

It would be a mistake to assume that the only product of the AWUP was a block of water. As well as the changes in the way that BC Hydro operates its facilities in the Alouette system, a number of other positive products of the WUP were identified. One of the key results was a general improvement in the ability of the various organizations to communicate, and to continue carrying on a constructive dialogue. This was particularly noted by many of the local government, local residents and BC Hydro representatives.

TCh Well, this stakeholder thing did a tremendous amount of breaking this down.... These little animosities and little distrusts were really knocked on the head. And at the end, people were really talking to one another. They’re finally discovering what the real world’s all about, and that’s
communication. So that’s basically, I would say, the greatest result from that stakeholders meeting.

DD The dialogue that we started with the community as a result of the Alouette Water Use Planning process has to continue. In my mind, that’s the only way that we’re going to be successful in being a valued member of the community.

LB The lines of communication are well established now, so I have no problem phoning the operators up at the dam at Ruskin, and say, hey, what’s going on? We had a ton of snow this week, and then it started to rain to beat the band on top of it. I phoned them up and said, your message on your machine is last week’s, it was Friday and this was Wednesday. Wednesday we had all the rain and I don’t know what’s going on and I just thought I should give you a call, and is it raining or snowing up at the lake? And I suggested that maybe they update their message.

These enhanced relations between BC Hydro and the local community occur both in informal exchanges, such as the one described by Lynn Baxter above, or in formal settings such as the Alouette Management Committee. In fact, there was a parallel process unfolding at the same time as the ASC, a flood warning communications fan-out system organized by Tom Charters with the assistance of BC Hydro and the DMR (see Appendix D).

Another result of the ASC process was increased understanding and recognition of the roles that different organizations played in the life of the Alouette River.

TCh You get to know a lot of the people, a lot of the people get to know you ... Instead of saying the engineering department are a bunch of bums and they should all be fired ... it makes them understand that these people are trying to do a job, like everybody else, it’s very important.

Drew Dunlop gave an example of how a particular individual had joined the ASC to replace another person several meetings into the process and “shouted for twenty minutes about how Hydro had destroyed the river” [DD].

DD At the end of the process, the last meeting, he came up to me and said, I had no idea how complex operating a hydro system is. I had no idea all the interests that Hydro tried to balance in operating the system, I think you do a good job, and I’m pleased to have been part of this process... I think that was, in a general way, how everybody felt.

He also recognized that there had been extensive learning happening on the BC Hydro side of the committee.

DD I’m not just saying that of the non-BC Hydro members on the committee. BC Hydro members on the committee learned about fisheries aspects on the river ... and we learned about the work that they were doing. It was an opportunity for everybody to develop a better understanding of each other’s perspective. And without having everybody sitting around a single table, talking about those issues, I don’t think we would have achieved what we did.
This learning also extended to gaining an understanding of what people outside of BC Hydro are really like, unlike what stereotypical images may imply. For example,

DD In some respects on issues as they came up, the committee dealt with them more harshly than BC Hydro might have.... They were more reluctant to spend dollars than BC Hydro might have been in the same circumstances. I think that, in my mind, helps demonstrate to me the usefulness of the process.

Finally, the AWUP represented a monumental change from previous decision-making processes for renewing water licences on the Alouette River.

GC Bottom line on this thing -- it’s just great that the government asked for this review and BC Hydro is going through this process. In 1970 one water licence on the Alouette was renewed, and as far as I can tell, it was just one simple paragraph -- given that no rights or privileges or threats are perceived to be impacting on the public, we hereby renew the licence to 2018. There is not one wit of paper work, and no-one so far has shown me any evidence that they talked to anybody

10.2. Implementation

10.2.1. Commitment to implementation

BC Hydro decided to implement the AWUP as soon as it was completed at the end of September 1996. This was before it received legal direction from the Comptroller of Water Rights (Swoboda, 1996). Many participants were extremely positive about BC Hydro's decision to implement the WUP even though they were not legally obligated to do so.

GC Until [BC Hydro] get the final directive from the Comptroller of Water Rights, the Water Use Plan is not a compelling policy by law ... Much to our surprise and to their great credit, once we reached a consensus, they said they just saw no reason why we shouldn't implement the Water Use Plan right away, if we didn't get it 100 percent correct, we probably have it 80 percent right, why not do it? So with that, they did it, which shows again that BC Hydro is definitely turning over a new leaf.

TCh BC Hydro lived up to what they said they would do. They promised more water in the river, which they gave us.

Going back one step, another aspect of implementation was the translation of the ASC agreement into the final WUP document. As was previously mentioned in section 8.3, there were some concerns that this part of the process was being carried out by BC Hydro alone.

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13 In fact, the WUP has not yet been approved by the Water Comptroller in 1998, over two years later, because of the ongoing development of guidelines for Water Use Planning in the province.
Generally, participants thought although the potential was certainly there, no major changes had been made in that translation.

JH That was a bit of a concern to the committee. Nothing negative materialized out of that, as far as I know, nothing that I read anyways, but I suppose you could argue that the potential was there.

The Water Comptroller’s office had sent a letter to all of the participants after it received the WUP document, asking if they had any comments on it. Some participants that I interviewed indicated that they had responded, with most indicating that they had suggested minor changes.

JV Was there anything that had changed?
LB No, nothing glaring but, I made a whole bunch of suggestions. I didn't like some of the wording, I gave her a few pages. They gave me the opportunity, and I thought I would take it. I said in a couple of places, this isn't quite my recollection, a few other things.

TC I've already appealed it [the AWUP document], ... I've written letters ... saying, this is how I feel about this, this, and that. This is what I don't agree with. And although we sat in a room, not everyone agreed with what's finally in that document, [but] it's not far off.

The way in which several unresolved issues were handled by BC Hydro was of concern to some of the interview participants. These included the adaptive management role and openness of the Alouette Management Committee (described in section 10.2.2.1), as well as the question of who pays for changes in power production resulting from the AWUP. Geoff Clayton identified a third area of concern: the lack of a guarantee that the water released into the Alouette River would be used for instream uses such as fisheries and recreation, not re-licensed for consumptive uses such as cranberry farms.

The question of compensation was one that had not been resolved while I carried out the interviews, and thus some government agency members did not want to make comments. The desire of many within BC Hydro was that they be compensated for changes instream, through the use of a system operating fund. That is, the costs of WUP should be taken out of the hundreds of millions of dollars that BC Hydro transfers to the BC government each year in water rentals and dividends.

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If you accept the view that the province will ultimately credit BC Hydro for these kinds of expenditures out of other funds that Hydro pays to the province, then it would not be financially affected.

The cost of changing water flows has been one of the reasons BC Hydro did not entertain changes in the past. It was also why regulatory agencies such as DFO did not take action, due to worries about being obligated to compensate BC Hydro if they did. However, from a BCMELP-WMP perspective, this was not seen as an issue to be discussed by the stakeholder committee. In fact, a $50 million/year compensation fund (also referred to as a System Operation Fund) has been created by the provincial government to compensate BC Hydro in cases where there has been a diminished rights.

... who ends up paying for changes? I guess it hasn't been decided yet, it really wasn't discussed as part of the stakeholder committee, maybe people didn't feel it was really something to say about it.

The Water Act sets out the provisions for the cancellation of water licenses, and water rights cannot be taken away for reasons outside the Water Act without compensation.

Clearly, there was a diversity of opinion about whether or not BC Hydro should be compensated. For some local participants, the idea of compensating BC Hydro was a disagreeable one, given the sense that the WUP balanced past inequalities.

So you think that in this case, that BC Hydro should be compensated? I guess it’s sort of, in one way it’s just money going in out of one pocket and into the other.

No, I don’t think so.... I think that what’s happened is that BC Hydro has had the use of a resource without putting sufficient back into the rest of the resource from which they’ve drawn this value. And I think we’ve simply corrected the imbalance of that.

Geoff Clayton broadly supported BC Hydro’s compensation for the water it was releasing under water use plans.

I think that it’s only taking it out of one pocket and putting it into another, but I really feel that the government should address that .... There has to be some way to address BC Hydro offsetting those costs, against their present form of bookkeeping.

For example, in a letter to J. Walker, Co-ordinator of Habitat Protection, BC Fish and Wildlife Branch dated March 2, 1976, W.E. Kenney, Manager, Operations Control Department, B.C. Hydro stated that:

At today’s prices the present release [1971 flow agreement] is worth approximately $50,000 per year in replacement energy, and this cost continues to escalate. I feel that B.C. Hydro has already acted very responsibly towards enhancement of the South Alouette fishery and in view of the present energy shortage I hope B.C. Hydro would be free of further commitments. (cited in (Griffith and Russell, 1980))
However, when he described the process by which he calculated the amount of water that they had taken in excess of their water licences, he had second thoughts about the appropriateness of compensation in the case of the Alouette.

GC I asked for, under the Freedom of Information, a ten year window, from 1985 to 1995 for information on all the overages, over their licence.... And then I crunched that down and it meant that they were over their licence, on average, 82 cfs [2.3 m³/s] for every day of the year, for about a ten year period. So if they're now giving us 90 [cfs, 2.5 m³/s] back, all that it’s done is brought them into compliance with their water licence. In other words, they've given us water they didn't own.

JV So in that sense?
GC So in that sense I'm not sure that they should be necessarily compensated.

But while the question of who bears the costs of the AWUP may be seen by some as somewhat tangential to its implementation, the second major question identified by interview participants is at the core of implementation. This was the role and organization of the Alouette Management Committee, the long term body which oversees the implementation and monitoring of the AWUP.

### 10.2.2. Alouette Management Committee

As was described in section 7.2.2.5, there was considerable discussion about how flexibility could be built into the WUP, given the legal constraints of the Water Act. Following a proposal by Tom Cadieux for two licences on the Alouette (one for hydropower and one for heritage resources such as fisheries, recreation, etc.), which was seen as impractical by BCMELP-WMP, a second proposal was made. Under this scenario, one licence would continue to be held by BC Hydro, but it would be under the management of the Alouette Management Committee (AMC).

The AMC has one representative each from DFO, BCMELP, BC Hydro, DMR and KFN. The responsibilities, as described by the facilitators of the ASC in their report were

1. to oversee ongoing studies and monitoring of fisheries impacts of alternative water releases;

2. to determine the preferred monthly and annual operating flows for the South Alouette River within the parameters set out for minimum flows and flushing flows, incorporating the best available information on the relationship between flows and fisheries habitat; and
3. to evaluate and provide a recommendation regarding increasing flows in excess of the capacity of the low level outlet.

(Gregory and McDaniels, 1996)

Interview participants showed considerable support for the AMC. For example, one of the ARMS representatives indicated that not only would the monitoring work the committee was doing serve to add to the science of instream flows, but that it would be important in maintaining support for the AWUP in the future.

GC The purpose [of the AMC] was to monitor, and I think that’s very important because changes in government, changes in structures, at the top of BC Hydro, if for no other reason will at some point question the value of placing the water down the Alouette. And to that end we should have some answers. Secondly, it’s good science on all our parts to know what works and what doesn't

A BC Hydro representative pointed out that the AMC has provided a forum for interaction between the government agencies involved.

DD We’ve [the AMC] met a number of times to plan future studies, assess the health of the river and that has been incredibly positive. We had the representative from Maple Ridge stating at a recent meeting, that now that there’s increased flow in the river, and fish are starting to return, that the district has to show some leadership in minimizing the impacts of urbanization along the river.

Despite widespread support for the AMC, there were also some concerns expressed by participants. Two themes surfaced as I looked through my interviews and correspondence sent by members of the ASC commenting on the WUP. The first was to what extent the AMC would manage adaptively. The second related to the openness and public participation of the AMC, and the mechanism by which any long term re-assessment of the AWUP was to be facilitated.

10.2.2.1. Adaptive approaches to ongoing management

MM I think ongoing management was an important part of the solution...

Most participants seemed very supportive of the “adaptive management” mandate of the Alouette Management Committee, and of the idea that they had not locked themselves into a single flow regime forever. For example, DFO and BCMELP representatives thought that adaptive management was key to the agreement, both from their agencies’ perspective as well as from the perspective of others on the ASC. They thought that it was the best way to address issues of uncertainty about science and future social values.

SM I think the adaptive management approach is one that gives people a little bit of comfort with respect to finalizing a plan, because it builds in the ability to go back and adapt to new
information. A lot of people around the table on the Alouette had concerns about getting entrenched into a long term flow regime, on the basis of some limited information, and on priorities as dictated in 1996 that may not be the same priorities or values in, say 2026.

MR What was proposed was something called adaptive management, and that's a very key principle to the agreement. In other words, this issue would be flexible, and you would manage the system by inventorying the response, and that you would ... have to modify the flows over time, based on the data that are collected.

So, we might run at full pipe for ten years, and then we might go to half pipe, or we might put in a bypass, and run it at a hundred and fifty or two hundred cfs [4 - 6 m$^3$/s] over a time period. And what we want to do is see the response by fish and push the system in a manner so that we, in effect, get a variety of different data points, with which to get the best flow regime identified. So the agreement is not viewed as being static; it's viewed as having the opportunity to modify it up or down as a function of what we see as being the response, both from a biological perspective, social perspective, a whole series of different perspectives.

Many of the other participants agreed that the approach helped to deal with the uncertainty in information they were basing their decision on,

LB We said, there's just too many things that we don't know anything about on this river, at this stage, and the flexibility has to be there to live with it.... Once we started really thinking about this, we realized this was absolutely essential.

MM The establishment of the ongoing management committee gives me a sense of completion because I know that there's a group who will still be following that on. The unresolved issues, I guess, are the trend map, to identify whether or not what we suspect is true with this increased water flow.

While ARMS members were generally supportive of adaptive management, some of its members were concerned that too great an emphasis could be placed on flexibility, which could undermine decisions because of a lack of clarity.

TC On one level, you heard Marvin [Rosenau] say, we like adaptive management, it gives us tremendous flexibility. But I'll tell you, in written documents and understandings, if you aren't definitive, someone tomorrow will be interpreting them and fighting over them again.... I guess the fear was at the end of the day that they walk away, get their deal, and someone would be interpreting it. And Don Swoboda [BC Hydro Vice-President, Power Supply] was interpreting one of those documents, almost within months of that thing being written. So I wrote to him and said I don't agree, that's not how I understood that [issue].

In contrast to the optimism about adaptive management within the fisheries agencies and local organizations, there were some concerns about the approach within BC Hydro.

JV ... adaptive management in a general sense sounds sort of good, but what does it mean in the practical?

DF In the Alouette we didn't spend a lot of time talking about it, and it's taken on a much bigger aura than how we talked about it in the Alouette. In fact it's taken on an aura that I don't think we
really have a handle on, which is going to be a challenge in other water use plans. Everyone seems to interpret adaptive management slightly differently.

In terms of the mandate of the Alouette Management Committee, it was to manage the flows, 100 cfs [2.8 m³/s]. If they wanted to back off the flows, they could do that and get money. Secondly was to do some monitoring, to understand what the impact of 100 cfs or changes of flows were on the river. And thirdly, it was to come up with a recommendation related to whether or not to expand the low level outlet.

The first part of the mandate of the AMC described by Daryl Fields (reducing flows in exchange for money for other habitat improvement purposes) was also referred to as a water budget. BC Hydro representatives presented the idea at the last ASC meeting on Aug. 13, 1996, but no final decision was made by the group. As proposed within BC Hydro's WUP document, it would allow the AMC to manage the release from the LLO, within the total budget of $440 000 allocated for the AWUP (BC Hydro, 1996).

Although the WUP document stated that the water budget concept "was favourably discussed within the Alouette Stakeholder Committee" (56), Tom Cadieux had some concerns about the concept, which he voiced in a letter commenting on the final Water Use Plan.

*I clearly stated in the Stakeholder Committee Meeting that although it is easy to see the concept of a water budget process, the River is not an economic bank account and the potential of compromising quality life giving water for dollars will set the river back and not forward.... A more detailed definition of this concept needs to be negotiated and documented. (Cadieux, 1996)*

One of BC Hydro's technical staff was skeptical about the potential for adaptive management on the Alouette River. James Bruce argued that people didn't really want to accept an adaptive management/experimental approach in which flows were varied widely.

*JB* They don't want to embrace adaptive management, because adaptive management is actually an experiment stressing the system to detect the type of response, it's not just deciding on a flow and leaving it there while you monitor. That won't work. You have to have a full pipe release, say for three or four years, then tweak it back to say, 50 cfs [1.4 m³/s], for another three or four years, and then see what you can do to keep the gates open for three or four years. It's an experiment. Adaptive management is an experiment. You're dealing with a lot of variability, so you've got to stress the system to try and tease out a measurable response.

Although flows in the Alouette have been low for decades, he believed that it was necessary to vary flows both high and low because of the lack of historical information about fisheries in the river.
... there's no consistency in the [historical] data. You've got some spot electroshocking data, but the density of fish they catch at one spot does not mean that that density is found everywhere else in the river . . . escapement data is so rough, you can't use it.

On the other hand, some local participants felt that they had already learned enough about the river at low flows.

GC We had been on the low flows for years, so I finally said, well very interesting, because my answer to that was, now let's go to the other extreme, lets get 300 cfs [8.5 m$^3$/s]. Then all of a sudden it became politics from BC Hydro's point of view because they said, well yes, but if we ever give you that, we'll never get it back again.

10.2.2.2. Openness and Public Participation

The membership of the AMC was limited to all four levels of government, plus BC Hydro. It seems natural to ask how well this committee represents the interests of the broader public, and to what extent the committee is open to input from the organizations represented on the ASC.

One of the facilitators emphasised that those representing the four levels of government were ultimately representing the public, and would thus respond to concerns raised by members of the public.

TM We pointed out to [the ASC members] that the organizations that are picked are the provincial and federal resource management agencies, Ministry of Environment, and Fisheries, the Katzie Nation. They are there to look after your interests, and if you don't think they are looking after your interests, you can start complaining, and they'll listen.

The DFO representative suggested that although not all groups were represented on AMC, the fact that BC Hydro wasn't the sole decision maker was important.

SM I thought the management committee would give the community some comfort that BC Hydro wasn't the sole decision maker down the road. BC Hydro would certainly be a voice but they wouldn't be the only voice in terms of directing the long term management of flows in the river. The stakeholders determined the membership of the AMC.

Members of government agencies who were not selected for AMC membership also seemed comfortable with the arrangement. For example, both the representatives of the provincial agencies not directly represented on the committee (BCMELP-Parks and BCMEI) both felt that they could access if the committee if they needed to. The BCMELP-Parks representative indicated that he could voice concerns through his Ministry, which is represented on the committee, and the BCMEI representative felt that "government could
always find a way of influencing implementation because BC Hydro is a crown corporation.” [DM]. Likewise, the General Manager of Parks and Community Services for the DMR indicated that although his department was not directly represented on the committee, “we know we can have access to the group with respect to any of the issues that come up from a recreational point of view” [MM].

Members of the planning team suggested that there were several reasons why no public interest groups were selected by the ASC to sit on the AMC. For example, the AMC was being set up permanently, thus the “notion that [the mandate of the AMC] is not over the next couple of years, this is over decades or centuries ... that kind of gave it a pause.” [TM]. This was certainly consistent with the way ARMS and ARMC saw themselves, as facilitators with a role in ensuring community involvement and government action on environmental issues, not as a new form of government (see section 6.2.1).

But while ARMC and ARMS initially felt it was best not to sit on the AMC, some of their members questioned whether they had made the right decision. For example, Geoff Clayton recognized that it was important to have organizations on the AMC that were around in the long term. On the other hand, he had been told by DMR staff that ARMS would be nominated as its representative to the AMC, which was partly why he agreed to the makeup.

GC Yeah, we feel that [the members of the AMC] will be there, as long as there is a water licence and a dam, so we felt, with some trepidation, that we could have influence on our municipality ... I was told by the engineer of the district, given the amount of knowledge and credibility that we've built up to be able to speak on this subject, that ARMS should be the representative for the municipality. And then the mayor turned around and appointed a councillor, which makes no sense to me at all, because this is a technical committee, and you don't appoint a political person to a technical committee.

After the arrangement didn't work out, Geoff Clayton began to have second thoughts. However, because of his involvement with KFN, he was still able to participate in the AMC.

GC As soon as the Katzie's heard that I wasn't going to be appointed at the municipal level, they appointed me to represent them, so that keeps ARMS in the loop. But we do have concerns, and maybe our thinking was flawed ... they would not have stopped us from having a seat and I think that we made a mistake there. I just felt so assured, I was assured by the councillor from Maple Ridge, that they would always see us as the expert and appoint us to represent them. It just seemed too logical and I forgot about politics.
One aspect of the openness of the AMC was its composition, while another is the ability of members of the public to access the committee on an ongoing basis.

TC I would talk about having the cam of the engine, a community accountability mechanism, that when those four, five levels of authority deal with issues on the Alouette, that yearly there would be a review process open to the public, so that people would say, no I disagree with you, and we can raise the public's awareness on the issue.

I was promised that they were going to have a yearly meeting, dealing with the Alouette Communications team, you know, the flood control, and that they would bring this up at the same time. It hasn't been fleshed out. That's why I asked the question, when is this document [the approved AWUP] coming out?

This public involvement becomes more important when considering that the AMC will be involved in making a long-term recommendation on whether or not to expand the LLO. It is somewhat unclear if a mechanism for reviewing the AWUP in the long term was discussed and decided upon within the ASC. The facilitators suggested in their report that a recommendation should be made about the expansion of the low level outlet “roughly after 10 years” (BC Hydro, 1996). In the AWUP document, BC Hydro recommended that the plan be reviewed

... every 10 years, on the anniversary of the issuance of the revised and pending Alouette Water Licences. Further, to introduce accountability into the review process, BC Hydro recommends that the review be funded by those requesting changes to the Water Use Plan (BC Hydro, 1996)

Daryl Fields thought that the inclusion of such a review process was key to the AWUP.

DF That's one of the big learnings that I had. Decisions made in the past were made on the best information at the time and what were deemed appropriate priorities at the time. But those past decisions are not necessarily right for today. People are frightened of making the same “mistakes” like our forefathers have made, even though they weren’t mistakes at the time. We need to build in an ability or mechanism to adapt over time. Our information changes, our values change, our relative values change over time. If the intent is to have the hydroelectric facilities in sync with values, you have do that regularly, and that's the intent.

Some participants were concerned about how the review process would be facilitated.

Given that BC Hydro has proposed in the WUP document that whoever requests a review should pay for it, they have good reason for concern. Part of the reason for BC Hydro

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16 Such a review is now mandatory as part of the WUP guidelines developed after the AWUP, although the frequency of the review is flexible.
carrying out the AWUP was so that it could remove the expiry date from its Water Licence (#7635); it will be making application to do this now that the WUP is complete (Swoboda, 1996). Some of the participants, particularly those from ARMS, were concerned that the removal of the expiry date would make it more difficult to ensure that a public review would be held, in spite of language in the WUP document stating that it would take place.

GC I said that in this day and age, I didn't think that any power company should be given a water license in perpetuity. It just creates bargaining chips down the road for the power utility.

JV And that wasn't agreed to at the table, in the water use plan

GC That's right. Because we were going to stick on it, in the end we dodged and we said it wasn't really in the terms of reference as we saw it as a group to make that determination. But then I wrote after that in this letter all the details, saying that I don't think that they should ever receive a licence in perpetuity, in the United States it's federal law, it's every thirty years, and it keeps everything current, thirty years in a power company is like a flash. Consequently it means that they always are having to consider a public use process that may come down at renewal time.

In addition to this concern, their other concern was that the WUP was not sufficiently clear as to the possibility for future increases in water available for non-power uses in the river. As stated by Tom Cadieux in a letter to Drew Dunlop following the release of the WUP document,

> the removal of the life of the dates from the license must be only considered when language in the operating plan clearly makes provision for accessibility to base line flows above full pipe based on adequate scientific justification .....

I also only agree to a license based on the life of the project when there are clear certainties for the river clearly stated. (Cadieux, 1996)

In order to ensure that flows above the full pipe can be obtained, Tom Cadieux suggested that a flexibility clause be added to the licence. This clause would allow additional flows to be accessed, given adequate scientific justification, and would be compensated for through the System Operating fund. It does not appear that such a clause has been added to the Alouette Water Use Plan.

Judging from the comments of participants, this review of process on the Alouette may not be limited to the quantity of water. Some participants were not particularly concerned about getting more water in the river now that the Water Use Plan has been implemented, but had other priorities. For example, the KFN representative stated, "Oh I think there's enough water there" [RB], but felt that it was important to rebuild the species of fish which have disappeared from the river -- "I believe that there was sockeye in the Alouette before, I'd like to see them back." [RB].
10.2.2.3. Ongoing Monitoring.

As was described in the previous section, the AMC was designed to make decisions about flows in the Alouette River (within the boundaries of the AWUP) and to carry out monitoring to facilitate a more informed decision in the future about increasing the capacity of the LLO. However, to reverse Daryl Fields' comment, the kind of information that gets collected depends on the decisions people make in the present, which will impact the emotion and fervour around future political processes.

Monitoring of the results of increased flows under the AWUP is being implemented through detailed fish escapement studies, under the supervision and planning of the AMC. In addition to these studies many of the participants themselves observed changes in the river after the AWUP was implemented in 1996, increasing base flows in the river.

TCh This place was full of algae, the river was just terrible, the amount of scum and crap in there. It was awful. But now I don’t see any at all, there’s no algae at all.... That little bit of extra water made a big difference.

GC ... dilution may not be the answer to pollution, but it certainly helps. We diluted our coliform counts. The whole river looks cleaner, brighter, smells better in the summertime, and there's more tubing done now, they get inner tubes in and out in reaches that they couldn't before

Several participants also pointed to the official enumeration studies that are being used to monitor fisheries in the river, which have also shown massive increases in the numbers of fish returning.

RB An amazing thing happened this year, well I think it’s amazing, that on average there’s been 30,000 chum coming back to the Alouette, chum salmon, the last estimate that I heard was 100,000.

DD ... one of our biologists who was involved in the instream study ... he just can’t believe the difference from when he swam the river the first time to when he swam the river this year, in terms of the number of fish in the river. That was what it was all about was seeing fish in the river. Even our biologists are saying it’s successful.

While there was support for monitoring the response of the Alouette from many of the ASC members, one of BC Hydro’s scientists was not convinced that the monitoring was focused enough.

JB The problem is, with the Alouette there's no structure in the monitoring program. There's no study design ... there's no set of objectives or links to decisions. Why are we measuring chum salmon? We know we've got around 40,000 chum salmon a year. So we've just spent $50,000 collecting chum information, and I don’t think we need it. It doesn't help you at all in making a decision of any kind about what would be an appropriate minimum flow -- especially if your
target species for management are coho and steelhead, or if your objective is a healthy river ... that’s the problem, there is no clearly laid out objective.

As previously mentioned, he felt that although the AMC was supposed to manage adaptively, it wasn’t carrying out true experimental adaptive management. Both he and Drew Dunlop agreed that because so many other habitat enhancement activities are being carried out in the river, it will be more difficult to determine what the impact of higher flows is on the river.

JB That’s the other thing about monitoring in the Alouette. Because we’ve got so many other activities going on in the river, enhancement works, it’s too hard to separate the effects of flows from the effects of all these other activities. They’ve just finished developing the Latimer side channel, they’ve increased the habitat. And then they’re talking about dumping spawning gravel ... they’re talking about fertilizing the Alouette Reservoir.

I mean, all of these are going to have impacts in the river, and how do you separate these impacts from those of higher flows, simply by monitoring?

Even the monitoring which participants described as showing massive increases in fish spawning in the Alouette may not be due to increases in the habitat, per se, but to the attraction of fish from other river systems. Increases in the productivity of the Alouette will not impact the number of fish returning for around four years, when the first juvenile fish born under the higher flow conditions return again.

MR Based on the mark recapture, there’s way more chum coming back to the river than we thought there was going to be, and we think that the increased flows might be sucking fish out of the Fraser River, and sucking them into the Alouette before they get into the Stave, because the two systems are linked. Now that there’s that much more water coming into the Alouette we may be attracting a quotient of chum salmon and chinook salmon from the Stave into the Alouette, so it gives us a reading that’s not related to Alouette production.

An issue of interest while I was carrying out interviews was the re-introduction of chinook salmon to the Alouette system, a fish which has been absent since the 1930’s. Although it was rejected as a candidate for the FFS, no-one guessed that it might simply overrule the scientists and simply show up on the doorstep.

GC Bear in mind that in order to run [the Alouette Correctional Centre] hatchery, they go out into the river and they use seine nets to seine some of their brood stock up, and they also have a trap ... So we know what’s been coming into that river, and there’s never been a chinook in that river. 1996, lo and behold they get two chinook

One of BC Hydro’s scientists emphasised that the increase in flows was not the only factor influencing the re-appearance of chinook, suggesting that perhaps reduced fishing pressure was also a factor. As was previously noted, he was fairly critical of monitoring
program of the AMC, which focused on chum salmon to determine the impact of increased flows. He felt that a species like chinook salmon would have been a useful indicator in an adaptive management context, given that it is not well established already like chum.

JB I don't think there was as much fishing pressure for chinook, because they were trying to rebuild the chinook stocks . . .and so there could be more coming back. They could have been strays, moving into any stream that has enough flow. I think the higher flow regime definitely has something to do with it, it will be more attractive to fish, but it's not just the fact that there's higher flows but that there could also more chinook out there. At this stage, I don't think that you can conclusively say that more flow gives more chinook without considering other factors. Chinook returns would have been a good issue to evaluate further in an adaptive management framework.

The return of chinook was also seen as a positive sign by those who had been interested in introducing chinook at the beginning of the FFS process.

JV I heard that a few chinook have been showing up too.

RB Yep. We're very happy to see that.

Although they were reluctant to add chinook to the FFS, the DFO introduced 50,000 chinook smolts into the river in the summer of 1997 following the re-appearance of the few spawning adults. This program, in combination with the fish which are spawning in the Alouette, may or may not be successful in re-introducing chinook. If the reintroduction is successful, chinook salmon may prove to be a key emergent issue, particularly for those who are pushing for increases in base flows in the future. BC Hydro's scientists continue to stand behind their models as representative of the reality of fish behaviour in the river.

JB The curves that we developed initially for the Alouette river do appear to reflect their behaviour in the river. I've gone back since to verify the steelhead curves and found similar behaviours in several other river systems. These need to be written up and presented for future WUPs.

But the curves James Bruce refers to did not include chinook, which tend to thrive in larger rivers.

GC I've since asked BC Hydro ... if they would put chinook aquatic use curves into the computer. Because now all the data points are in there, it's just a matter now that they take a set of specs for chinook use curves that they have in Washington and Alaska ... put it in the computer software model. They got flows of 250 to 300 cfs [7.0 - 8.5 m$^3$/s] , that chinook would require for their ideal flows. So ten years from now we'll be looking at that too.
10.3. Summary

The substantive decisions made by the Alouette Stakeholder Committee, which have since been incorporated into the AWUP, were the result of a consensus decision. That consensus continues to be reflected in the comments of ASC members during our interviews, which took place after at least a year after the ASC finished. Different participants had different reasons for agreeing to the package of decisions that they did. A number of decisions were clearly seen to result in low costs and high benefits (such as the implementation of flushing flows, increased flood protection, and ramping rates); as such, consensus was reached more easily.

The issue of base flows through the lower level outlet (LLO) had significantly higher economic stakes, and there was a greater diversity of opinions what optimal flows would be. Two sets of opinions emerged in the final meetings of the ASC: the majority of the committee felt that on the whole, the FFS and other information supported the LLO being opened up fully, with the exception being the BC Hydro representatives, who felt that the information supported slightly lower base flows. The variability in the results from the FFS (both the initial study and additional modelling that was requested) led some participants to take a precautionary approach to protecting environmental resources, and adopt the higher base flow level. BC Hydro representatives, on the other hand, felt that given the uncertainty in the FFS, the lower (and less expensive) flow regime should have been adopted, and increased later if monitoring indicated it was beneficial. Although the BC Hydro representatives continued to see the lower flows as most appropriate, they agreed to the higher flow because of they felt it was important to "build and maintain public support", and to make a positive first step for Water Use Planning in the province.

There were also a number of more qualitative outcomes of the ASC processes, which were cited by both community, BC Hydro and government representatives. These included improved communications and increased mutual understanding between the organizations involved, in particular between BC Hydro and the local community.

BC Hydro's implementation of the AWUP before receiving direction from the Water Comptroller was applauded by many of the participants, and taken as a sign that BC Hydro is changing the way it deals with environmental resources. The Alouette Management
Committee (AMC), the long-term body for implementing the AWUP in an adaptive manner, was also described as a key part of the ASC decision by many participants. Most interview participants felt that the monitoring program of the AMC would be important in making future decisions and justifying the increased flows, although a BC Hydro scientist felt that there was a need to provide more structure to the monitoring program. The adaptive mandate of the AMC was described positively, although community and BC Hydro representatives emphasised the importance of being clear about what "adaptive management" implies. Finally, there were a number of outstanding issues which the ASC process did not resolve, which include:

- the extent and process whereby the AMC will involve the public;
- the responsibility for carrying out a review of the AWUP after ten years (BC Hydro would like whoever requests the review to pay for it, which concerned some others);
- the removal of the expiry date from BC Hydro's water licence (desired by BC Hydro, but opposed by some community representatives);
- the lack of a guarantee that water released into the Alouette River is for instream uses only;
- the need for a more detailed definition of the "water budget" concept; and,
- the question of whether BC Hydro should be compensated for changes made under the AWUP.

Government agency representatives felt that some of these issues (such as compensation) would be decided by decision-makers within government; however, a number of participants showed a keen interest in the outstanding issues, and may be able to contribute to the resolution of these issues.
11. Conclusions and Recommendations

The previous five chapters presented a fairly detailed analysis of the organizations involved in the AWUP and the process itself. This chapter brings together some of the themes which run through these chapters in order to summarize the case study and provide a point for returning to criteria which I used to evaluate the case study, and the questions posed about public participation and its use of scientific knowledge in Chapter 3. Finally, I return to the policy context of water use planning, and make recommendations which build on the experience in the Alouette River.

11.1. Conclusions

Based on the evaluation I carried out in Chapters 7 to 10, I have identified what I see as the main strengths and weaknesses of the Alouette Water Use Planning (AWUP) process. Although no aspect of the process was purely a strength or weakness, some tended to be closer to the ends of the spectrum. Other aspects of the process that had significant strengths and significant weaknesses are included in an intermediate category.

11.1.1. Strengths

- **Purpose strongly supported by participants.** The purpose of the AWUP, in terms of reviewing the issue of flows on the Alouette River and its impact on fisheries, flooding, recreation, and hydroelectric power was widely supported by participants.

- **Focus on substantive rather than process issues.** Given the amount of work that had been done by groups like ARMS and ARMC before the process began, people were not interested in simply talking about how the Alouette River could be rehabilitated, but were interested in producing results. Thus the decision to focus on substantive issues rather than spending an inordinate amount of time discussing the process to be followed was a productive one.

- **Use of a variety of information sources.** A wide variety of information sources was drawn upon by the committee. These included both formal experts, as well as those that had informal expertise about the Alouette River. Many of those involved in
generating the information made presentations to the ASC, which allowed ASC members to ask questions of them.

- **Development of information at the request of stakeholders.** In addition to drawing on information sources, ASC members was able to question technical staff, which led to some additional work being done. For example, some additional modeling was done on the Fish Flow Study when some questions were raised about the suitability curves being used to link flows to fish habitat preference.

- **Involvement of key people bridging community and technical studies.** A number of people played key roles in bridging between technical studies/scientists and members of the committee who were not technical experts. In doing so, they also made the technical information credible. For example, Geoff Clayton of ARMS played such a role for some of the local representatives; Steve McFarlane and Marvin Rosenau played a similar role for those in the government agencies who were not fish biologists.

- **Learning about the river, each other.** Many participants felt that they had learned a remarkable amount about the various uses of the Alouette River. A number of participants from all organizations also gave examples of how they had come to understand the perspectives of other participants.

- **Ability to reach consensus on WUP.** There was widespread support among participants for the agreement that was produced by the Alouette Stakeholder Committee. Indeed, a number of participants felt that the ability to reach consensus indicated that the process used by the ASC facilitators was a good one.

- **Increased understanding and communication.** In addition to the agreement, which was the more formal and quantitative result of the ASC meetings, other important products included increased understanding of the perspectives of other participants, and improved communication between organizations that have historically had fairly poor relations.

- **Commitment to implement the AWUP, even before it was made legally binding.** The fact that BC Hydro agreed to implement the AWUP before they received direction
from the Water Comptroller was widely cited by participants as an example of BC Hydro's commitment and sincerity.

- **Adoption of adaptive approach to managing the water in the long term, and to reviewing WUP in about ten years.** The Alouette Management Committee, the inter-governmental body which will monitor the implementation of the AWUP, was described as a having a mandate for adaptively managing the Alouette River. There was widespread support for this concept and the idea that the decision made by the ASC would eventually be reviewed after a period of about ten years.

11.1.2 Mixture of Strengths and Weaknesses

- **Inclusiveness.** All participants felt that the committee represented the various interests in the Alouette River well, although several participants identified additional stakeholder organizations or interests that they felt should have been better represented at the table, which included local riparian residents, recreational fishers, and the BCMELP-Water Management Program.

- **Equal opportunity to participate.** To a large degree, everyone was able to make their views known to the committee. On the other hand, there were some concerns about how well some specific groups, such as Katzie First Nation were able to participate, given the adversarial nature of early meetings.

- **Use of both economic and non-economic valuation measures.** There was some disagreement about the decision to not apply economic valuation to all objectives, although most participants supported it. Indeed, for many of the local participants the decision was pivotal in building trust because they felt that economics would favour water for power production over all other objectives. On the other hand, several participants noted that they had to be vigilant in ensuring that everyone remembered that the measures that were not priced, such as flood control, fish habitat and recreation, had value as well.

- **Facilitation methods.** Although most participants recognized the hard work that was done by the facilitation team, there were a number of questions raised about the facilitation methods. There were varying degrees of concern about the ability of the
facilitators to remain neutral, although some participants felt that they may have become more neutral as the process progressed. Several participants felt that the facilitators were not sufficiently flexible in dealing with challenges to their meeting or process structure. Several others were concerned that while the facilitators were supposed to facilitate the education of the committee, they did not come into the process with sufficient substantive knowledge about water use planning itself. On the other hand, many participants recognized the commitment of the facilitators to the process, a process they saw as far superior to what had been before.

- **Quality of technical studies.** The quality of some technical work, such as the FFS, was praised by many of the participants, although one person was highly critical of the methods used. (This does not mean that the interpretation and assumptions of the study were not highly controversial). On the other hand, some of the other work, such as the recreation study, was widely seen as weak and incomplete. A few participants who had more direct involvement were supportive of the recreation study, but many others suggested that the studies were not rigorous, and involved methods which heavily depended on the subjective judgements of the consultants. One participant described the public survey the consultants carried out for linking recreational value to flow levels as "flimflam".

The modeling of potential flooding, based on several alternative operation scenarios was not widely discussed, although it was seen as credible by those who commented. There was some ambivalence in participant's attitudes towards the information they were given on the implications for power economics. They recognized that there was some uncertainty in the power economics information, but given that BC Hydro was the one giving up the power benefits, they were reluctant to question the information too deeply. For all of the technical studies, some of the community stakeholders indicated that the role of BC Hydro in the studies, either in financial backing or direct involvement, needed to be offset by other factors, such as greater community and government involvement, or review of the studies by independent experts.

- **Accountability of ASC members to their communities.** Although this study does not focus on the relationship between ASC members and the communities they were representing, the comments of some participants gave some insight into potential
problems with accountability. Participants representing organizations in which links already existed between themselves and those they were representing tended to give more concrete examples of how they tried to remain accountable. In more loosely linked communities (recreational users, riparian landowners) the mechanism for representation and accountability was less concrete. To some extent, accountability was facilitated by the open houses, although not all ASC members participated or were aware of them.

11.1.3. Weaknesses

- **Resistance to public involvement in technical studies.** Although attempts were made during the ASC meetings to bring information to the committee as it was requested, the technical studies such as the Fish Flow Study involved the public in only a limited fashion. The adversarial nature of the interaction between the government agencies, ARMS and BC Hydro over the FFS created a sense of mistrust over the results of the study. Further, some of the technical people involved in the FFS were reticent about involving non-experts in the study. The recreation studies reported to the ASC as well, and the consultants carrying out the study made some attempts to answer the questions of the committee. However, for whatever reason --lack of resources, time or understanding -- some of the concerns raised were not substantively addressed.

- **Lack of recognition of pre-existing community organizations.** Hard feelings were created at the beginning of the process when the work of the ARMC was not acknowledged. BC Hydro representatives and the consultants portrayed this as part of the long-standing conflict between BC Hydro and the community, or as unavoidable given the disposition order from government which specified that certain individuals should be consulted. In the eyes of ARMC and ARMS representatives, the failure was not that the wrong people had been selected -- the composition of the AWUP closely mirrored the ARMC -- but that the process of selecting participants had not involved them and acknowledged their role in facilitating interaction between government agencies and the community.

- **Need for more meaningful involvement of those outside of the stakeholder committee.** To some extent, the involvement of people outside of the stakeholder
committee was facilitated by a number of open houses, which were open to anyone to attend. This process needs to be improved in future water use plans, given the comments by some participants about the need to improve the representation of riparian residents.

Further, some questions were raised about the ability of non-ASC members to access the process. Although relationships developed between members of the stakeholder committee in part because it was a closed and relatively small committee, this positive feature came at the cost of a couple of incidents of conflict with certain individuals outside of the process. While such incidents may be written off as aberrations, they can also be learned from to improve future processes.

- **Need for greater sensitivity to cultural differences.** Multi-stakeholder processes have the potential for not being sensitive to local contexts and cultural values. For example, one of the previously mentioned conflicts with a visitor to the ASC resulted in offense being taken by the Katzie First Nation representative. The visitor in this case was an older man, who tried to address the ASC and got into a shouting match with a facilitator. From the perspective of many participants, the visitor was disruptive, aggressive and perhaps drunk; from the perspective of the KFN representative, he was an elder who needed to be treated with respect.

There was also a need to be more sensitive to the culture of science. For example, there was an expectation that technical studies such as the FFS could produce results that were approximately correct before they had been completed. This created a great sense of frustration on the part of some of the scientists involved in the FFS, who were rushing to complete the study as quickly as they could, and indicated that there was a lack of discussion amongst themselves before bringing the results to the group. There will always be uncertainty in the science of instream flow studies, but this has to be differentiated from situations in which there has not been sufficient discussion to ensure either agreement, or agreement on how to disagree.

- **Lack of clarity in the “adaptive management” mandate of the Alouette Management Committee.** While there was widespread support among interview participants for the concept of adaptive management, there were a diversity of views on
how it should be implemented. For example, some participants clearly felt that the AMC should carry out experimental management by varying the flows and monitoring the results, while others felt that adaptive management should be limited to monitoring the results of the agreed to flows. BC Hydro participants were cautious about any experimentation with flows above LLO capacity, and supported the concept of a water budget, whereby flows could be decreased from the full LLO and the money put into habitat restoration. On the other hand, many of the local representatives were skeptical about experiments that included flow levels below the LLO capacity, but not above it.

- **Limited involvement in the AMC of those outside government agencies.** The make-up of the committee (4 levels of government and BC Hydro) was generally agreed to, in that groups such as ARMS and ARMC saw their role as facilitating, not taking over, governance. On the other hand, ARMS representatives had agreed to this arrangement because they were confident that they would be the representative of local government. When this did not occur, ARMS members questioned the make-up of the AMC, although perhaps because ARMS is presently representing Katzie First Nation, they have not pushed the issue. Additionally, although there was some discussion in the ASC about the AMC carrying out a yearly public consultation exercise, there was some uncertainty about whether and how this would take place. A number of participants hoped that it would take place, in order to keep the AMC accountable to the community.

**11.1.4. What is Good Public Involvement?**

The criteria I have developed are based largely on the principles for consensus based decision-making developed by the Canadian Roundtable on the Environment and Economy (1993). These principles stress the need for openness and inclusiveness, not only to participation but to the process of participation itself. On the other hand, the consultants hired to carry out the consultation exercise for the Alouette Water Use Plan have developed a set of their own criteria based on decision analysis theory, which stress the need to structure processes in order to develop wise solutions (McDaniels et al. 1998). The debate between these two approaches was described in somewhat greater depth in Chapter 3.
It is useful to step back from and think about public participation processes as rituals of governance. As rituals, public participation processes serve as sense making mechanisms and help to construct the inter-organizational world of environmental governance. But rituals such as public participation not only construct reality, but are constructed based on how reality is seen to be. Thus differences between ways of knowing the world can be seen in the gaps that develop between the proponents’ and participants’ interpretations of a public participation event.

For example, consensus-based decision making evolved as a means for involving less powerful individuals and organizations into decision making. By empowering participants to define how they will go about learning, discussing and deciding, proponents of this approach hoped that decisions would better reflect the values of participants, and prove to be longer lasting solutions. While this sounds good in theory, in practice the experience of some people within such processes was that they were dragged out without direction or purpose, and with much time being wasted in discussions on what "process" should be followed. Given that many participants in multi-stakeholder processes are managers either in name or in practice (particularly those from government agencies and non-governmental organizations), it is not surprising that frustration can develop.

The flaws of consensus-based approaches provide a launching pad for the proponents of more structured processes. They argue that consensus based approaches tend to be unworkable; and that providing some structure to the decision context ensures progress will be made. However, the use of certain methods to structure group processes can become mixed up with the idea that if participants have significant control over how the process is run, the process will go nowhere. In other words, structured processes and consultation are seen to be inextricably linked together. Perhaps process structure and process control do not need to be either/or.

I think that hybrid decision analysis/multi-stakeholder processes have something to gain from consensus-based approaches and vice-versa. While the emphasis on process self-design in consensus processes is perhaps too idealistic for some situations, it also represents a model for interacting with the community with care and sensitivity at the beginning of the process. My reading of the Alouette Stakeholder Committee process is that the entry of the process could have been much more sensitive to the community than
it was. If there is anything to learn from the Alouette experience, it is that communities are not merely composed of an amorphous “public” which can be conveniently represented by various interest group. Instead, an important part of communities are organizations and institutions with strong commitments and ownership of the issues planners are interested in, which means that planners have to work with pre-existing community organizations themselves, not merely with individuals.

A key part of entering the community when beginning a multistakeholder process is what I call the “process of representation”. By representation, I am not only referring to the stakeholders who represent various organizations and interests, but also the people who are specifically asked to represent the physical world (technical staff), and the process itself (facilitation staff). Perhaps the criteria of process self-design should in part be replaced by the criteria of involvement in the process of representation. This process should begin by working collaboratively with interested community organizations, and may extend into the initial stages after the multi-stakeholder committee has begun to meet.

A second general criteria relates to the ongoing involvement of stakeholders in the process of knowledge creation. As is becoming clear from the risk perception literature, people trust information because they trust the source of that information. Thus people will not trust information presented to them by experts unless they trust the experts, or their trust is mediated through another person. In the case of the AWUP, the involvement of a “community expert” in the technical studies was a key part of the community’s trust in those studies. Thus it is critical to think of stakeholders not only as those who possess “values”, but those who hold and interpret knowledge.

11.2. Recommendations

The Alouette Water Use Planning process can and should provide lessons for future Water Use Planning in the province. But what are those lessons? A number of the participants went as far as to suggest that the AWUP was “the model to be used for water use planning around the province” [MR]. On the other hand, even supporters of the process and its results were unsure about its universal applicability.

GC They keep saying that Alouette was the model, but there are so many ways that you could break the process down, and so easily, that I don’t see it as an easy one to duplicate because sometimes I think we were just dead lucky
The recommendations that follow are a response to the question of the applicability of the AWUP as a model for other river systems. I did not evaluate the WUP policy guidelines (BC, 1997b), which were developed after the ASC reached agreement, although the recommendations have implications for the guidelines. I made use of some of the recommendations passed on to me by my interview participants, and acknowledge the debt which I owe to them for the ideas they shared with me. However, the collected set of recommendations are my own, based on my analysis of the case study, and I take full responsibility for them. In some cases I identify both consultative and bargaining approaches to implementing a recommendation. The consultative approach would be easier to reconcile with the existing policy design of the WUP guidelines, while the bargaining approach would alter the institutional design of Water Use Planning to make the program more open and responsive to non-governmental organizations.

11.2.1. Greater Openness And Accountability For Specific Water Use Planning Processes

- **Be clear about how the results of the process will be used.**

  JH  Let’s quickly have the guy from Victoria come over and explain exactly how he makes his decision, what he expects from us, and really what are the alternatives here.

Stakeholders not only need to learn about the natural science and engineering of hydroelectric power and its environmental, social and economic impacts. They also need to understand the bureaucratic and legal context in which they are being asked to act, preferably early on in the process. It is not enough to tell participants that the purpose of Water Use Planning is to make wise resource decisions; they have to understand how it is that the results of negotiation will impact and be impacted by existing policies and legislation.

- **Give stakeholder committees negotiating Water Use Plans more independence from BC Hydro.**

  GC  I feel in the future that we have to give more sense of independence to a stakeholder committee process, so you don’t feel that you’re in there with this monolithic giant, being manipulated, because it takes a long time to get over that and get on with the business.

Although BC Hydro made efforts to assure the ASC that the consultants and technical specialists were working for the committee as a whole, the fact that BC Hydro was
financing the process was a barrier to its public credibility, particularly at the beginning of the process. More thought needs to be put into this area in future Water Use Plans, particularly in situations in which there is greater mistrust between stakeholder groups. The key questions here are who makes decisions about money/resources, and who makes decisions on process.

Consultative:

In addition to saying that consultants are working for BC Hydro, such statements could be put into writing in order to give them more clout. This may or may not prove to be productive as the process could become bogged down in discussions around BC Hydro’s written statements. Written statements often do little to create trust, as they often do not communicate sufficient emotional content in order to promote constructive interpretation. Instead, perhaps a face-to-face process is required.

One idea would be to create a consensus-based advisory committee which provides recommendations to BC Hydro on how to implement Water Use Planning in the province. In other words, this committee would be composed of the same kind of cross-section of interests as local WUP round tables, but at a province wide scale. This committee could provide valuable insight into the hiring of consultants, given that the committee would learn about the abilities of various firms from one WUP which would inform its decisions in another. The committee could also provide advice about the relative importance of various water use plans, if decisions had to be made about which should be carried out first. The existence of the committee could be crucial to the credibility of the WUP program, in terms of convincing people that it is not just a BC Hydro public relations game but is responsive to needs of a wide body of stakeholders.

Bargaining:

In order to facilitate active bargaining between the various organizations involved in Water Use Planning, the advisory committee could be expanded and made more independent. Instead of being a body which provides recommendations to BC Hydro, it could be a forum for managing the WUP program.
For example, the money from BC Hydro which goes towards water use planning could be placed in a trust fund which the advisory committee would manage. Contributions to this fund from other government agencies who have also contributed to past mismanagement would create a sense of balance and fairness, and could potentially even accept contributions from private organizations and individuals. The fund would then contribute to the operation of water use planning tables, in terms of funding consultants, technical studies, and other expertise as required. The cost of water use planning in terms of changes in flow regimes would remain the domain of BC Hydro, but the administration of the program would be funded through an independent body.

A number of models for similar programs could be looked at. One example is the Columbia Basin Trust, a body created for reallocating assets the economic benefits from power production on the Canadian portion of the Columbia River to the local communities, who have been impacted socially, economically and environmentally\(^1\). Another model worth looking at is the Habitat Conservation Trust Fund (HCTF)\(^2\), which presently funds work in habitat restoration, species conservation, land stewardship, environmental education or land acquisition. Although the HCTF gets most of its income from hunting, fishing and trapping licences collected by the province and its funds are formally administered by a Trustee (the Minister of Environment, Lands and Parks), a Public Advisory Board makes recommendations to the Trustee for fund allocations.

A similar arrangement would mean that BC Hydro would give up some control over Water Use Planning. On the other hand, there would be some benefits. By giving the advisory committee more responsibility and independence, members of the committee would themselves be more responsible to the WUP program. Additionally, the public credibility of the WUP program would increase, as the advisory committee would be perceived as an independent body rather than simply a rubber-stamp.

- **Empower community organizations involved in Water Use Planning, particularly at the beginning stages of the process.** One aspect of giving stakeholder committees more

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1. See their web-site at http://www.cbt.org/
2. See their web-site at http://www.env.gov.bc.ca/hctf/
independence would be to empower community organizations. The areas in which this could be applied practically, as was suggested in the previous section (11.1.4), is in the initial process of representation, in which stakeholder committee members, facilitators and technical staff are selected. The previously described WUP advisory committee could play a role here in learning how to improve Water Use Planning, and could guide and serve future processes. For example, the WUP advisory committee could maintain a roster of facilitators, and could assist individual processes in collectively selecting facilitators, similar to the process of selecting labour arbitrators.

GC You can understand that the community was very concerned that BC Hydro had conceivably selected a point of view. There's no way to overcome that unless BC Hydro says, look, we'll collectively plan and select [facilitators]. And this is what you do with unions . . . they have a number of arbitrators that are selected for the final step in the grievance procedure out of a pool of maybe four of five that both sides agree on, and they're the ones utilized . . . labour relations and BC Hydro understood that process. Why did they not bring it out here?

Likewise, methods need to be developed for including meaningful and open public involvement in the selection of the committee. Even participants from BC Hydro recognized this as a potential problem for future WUPs.

DD I think a better process would have been to find a way of the stakeholders expressing interest in participating. And then, prioritizing those stakeholders, so that you can keep the table to a manageable size.

One potential approach for self-selecting a committee would be to create a WUP Forum, a larger group like what would be present at an open house, which would be open to anyone who wanted to join. From the WUP Forum, a smaller Committee could be created which would actually carry out the detailed Water Use Planning negotiations\(^3\). The Committee could be created by forming sub-caucus within the WUP Forum, which would each send one representative to the WUP Committee. Those selected to sit on the WUP committee would be responsible to their sub-caucus. Thus all of the key interpersonal interactions which facilitate building trust and understanding would take place in a small group, but in a way which includes a broader range of interests.

\(^3\) The source of this idea is some work done by my supervisor, Prof. Tony Dorcey. He helped to facilitate a process for the World Bank and IUCN to review the Bank's policy for assessing dams, which led to the creation of the World Commission on Dams. See the following web-sites for more information:
http://www.interchange.ubc.ca/dorcey/tony (Tony Dorcey's website)
http://www.dams.org (the World Commission on Dams website)
Although this process may seem complex, it is one which has been carried out in other multi-stakeholder processes dealing with equally or perhaps more controversial issues, such as the process developed to review the policies of the World Bank on the funding of large dam construction. The WUP Forum would also serve as an accountability mechanism, in that the WUP Committee could report back to the Forum at various points along the process. Unlike an open house, which anyone can attend but that seems all too often to have virtually no impact, the Forum concept gives a place for meaningful interaction to take place between the Committee and a broader cross-section of the public. Participants would gain a sense of ownership over the Forum which does not exist in the open house, because of their greater ongoing involvement in the process.

Consultative:

The WUP Forum could simply be a way of providing interaction between the wider public and the WUP Committee. Under a consultative model, the WUP Forum members would provide advice to the WUP Committee, but the Committee would not be bound by the direction of the Forum. There are options for consensus rules and approaches to building bridges within the WUP Forum.

For example, the Committee could approach the situation by simply describing a set of decisions that it is recommending at a key point in the process, which it could present to the Forum in order to generate discussion. This could be taken a step further in presenting several options to the WUP Forum, in order to gauge the relative support for each option. Finally, the WUP Forum could also be used to generate information, when the WUP Committee identifies information gaps that need to be filled or is uncertain of public values on a certain issue.

There are also options for consensus rules within the WUP Forum. For example, a strict interpretation of consensus could be taken in which there has to be agreement from every person. Another approach would be to define consensus explicitly at some level less than 100%. Finally, instead of using consensus as a rule, the Forum could be presented with a number of choices, and the group could be polled to find the decision which the most people can live with.

Bargaining:
The WUP Forum could be used to guide the activities of the WUP Committee more directly, by providing input and direction at key points in the process. The Committee could present its results, which could be evaluated within the Forum. The Forum would then give direction to the Committee on how to carry out its activities during the next phase of the process. In that sense, the WUP Committee functions to carry out the wishes of the WUP Forum, but in a more efficient manner.

- **Recognize the facilitative role of community organizations.** This recommendation is not specific to water use planning policy, although it has an impact on the ability of processes like WUPs to address broader environmental concerns. Community based organizations like ARMS and ARMC played a key role in the AWUP process, in activities such as raising awareness of issues, facilitating interaction between community groups, ensuring that the community was well represented in the process, and aiding lay members of the committee in interpreting technical information. The comments of one of the local municipality’s representatives on the AWUP as a model process were very telling.

  JV  How much do you think it [the AWUP process] provides a model for other hydroelectric facilities, for other places?

  MM  I think it provides a model, I guess the question is what is it? ... I look at the BC Hydro thing as being but one part of the larger whole, not the only thing, and I think the process there and the parties who were involved was to some degree driven by previous work on the development of the Alouette River Management Group [previous name for ARMC]

Community based multi-stakeholder groups such as ARMC should be supported by government funding, particularly groups with broad community and government representation.

TC  I think you can still work towards a sustainable model, and that's what I'm working on.... Right now the council does not have it; it's held together by us. I think that there should be more on the table holding it together, helping us into the future. Government has, in my opinion, a responsibility to the community today.

In order for that support to not become co-opting, it is necessary for advocacy groups like ARMS to continue to exist, driven by volunteer effort in order to act as effective critics of community-based multi-stakeholder bodies. Their independent voices help to keep collaborative government/community processes honest.

In situations where there has been little previous community organization that specifically which relates to the environmental, recreational, economic or other impacts of changes in
instream flows, some kind of community building may need to take place. There are many excellent guides to community building, such as Kertzmann and McKnight (1993), and Dobson (1999). Although both of these books focus on community building within urban areas, many of their methods are also applicable in rural contexts. Both emphasise the importance of recognizing already existing community assets -- individuals, institutions and associations -- and mobilizing them towards development goals. They develop techniques for identifying these assets, and show how public and private institutions can work in partnership. Both also include case studies of how community-building principles have been put into practice.

- **Develop mechanisms for ensuring accountability between stakeholder representatives and those they are representing.** There were some questions about the accountability of stakeholder representatives to their constituencies in the AWUP. These concerns could be addressed through a number of avenues.

Facilitators need to make it part of their task to check on and ensure that representatives are being accountable to those whose interests they are representing. One approach would be to ask all stakeholder committee members to explain to the group how they are ensuring that they are accountable. In many cases, it would become apparent whether any attempts were made to ensure accountability. Facilitators could more formally review stakeholders' consultation of their constituencies, although this could be expensive and viewed as intrusive by for those organizations that have a strong sense of independence and self-identity. Whatever approach is taken, the steps taken to ensure accountability should form part of the official record of the process.

Mechanisms could also be developed which formally incorporate a wider range of groups into the process. The idea of a WUP Forum as suggested above could be one approach for drawing in a wider group to which the WUP Committee would be responsible. Another somewhat more structured approach to ensuring accountability, suggested by Daryl Fields in section 9.3.1, would be to create sub-committees for the various primary interests, to which individual stakeholder committee members would be responsible. There would thus be a more formal means of ensuring accountability, although there may be drawbacks in terms of being seen as co-opting community groups, or in isolating the stakeholder committee members from each other.
Finally, any interagency committees which are set up for the long term monitoring of water use plans must be made accountable, through explicitly specified review processes open to public. Extensive reviews of water use plans, which are included as the final step in the Water Use Planning guidelines, should be anticipated for some WUPs given the uncertainties in the science and values for Water Use Planning. Although there should be mechanisms which screen out baseless complaints, I do not support BC Hydro’s proposal that reviews should be paid for by the organization requesting change. Such an arrangement would ensure that future conflicts over water once again become stalled, given that the financial burden of paying for a water use planning process could only be carried by the large and powerful organizations -- BC Hydro, government agencies, and large industrial users.

Instead, mechanisms need to be created which provide resources when there is public concern over water resource conflicts. For example, a small portion of the $50 million/year System Operating Fund being created by the provincial government to compensate BC Hydro for changes in flows due to Water Use Planning could be set aside for reviews of WUP processes. This money could be managed by the WUP advisory committee, who could work with BC Hydro to ensure that criteria are built into each Water Use Plan to trigger review processes.

11.2.2. Greater Openness and Interaction In Technical Studies

- Increase involvement of government agencies in technical studies.

GC I really feel in the future that the provincial government and the federal government should take more responsibility in bringing forth information to a stakeholder committee process, so that you feel that there’s a certain sense of independence in the information that comes forward. It’s not that I’m saying BC Hydro would deliberately come forward and lie in that process, but everybody has a bias.

As suggested by Geoff Clayton, government agency scientists could play an important role in ensuring that the information used in Water Use Planning is more independent. James Bruce, BC Hydro’s lead scientist on the Alouette Fish Flow Study also saw benefits in the greater involvement of government agency technical staff in instream flow studies. Their greater involvement would result in more useful interaction in the development of technical information, rather than adversarial conflict over results.
My thing again goes back to the technical committee, whereby you work as a team, that we don't just meet three or four times, but we actually all work together in the field. We all swim the river together, we collect data together, we debate over how we analyze the data together. This way we all develop the same local knowledge, a knowledge base that is as close to the truth we can make it. Stakeholders can then put whatever spin or bias that want on the data. That's the appropriate forum for it.

This level of involvement is a challenge in times of government restraint, but carrying out collaborative technical studies requires some investment on the part of government agencies on an ongoing basis. It takes time for trust to be built and for interaction to take place.

- **Facilitate negotiation in the development of technical studies.**

There are likely to be some technical sub-committees, which will review the methodology for determining the flow required at various stages of the fish life cycle. The subcommittee is expected to come to an agreement as to what the appropriate method is for a given stream.

Although increasing interaction between technical people is important to improving future WUP technical studies, even the most collaborative of technical studies may not produce scientific consensus. As is evident from the AWUP case study, the development of technical information is a political process, and involves the same processes of negotiation that take place in political bodies like the ASC. Additionally, because stakeholders have local knowledge which overlaps with the formal science carried out for water use planning, there needs to be a process which integrates the knowledge of technical and non-technical people. Although we can hope that the science for predicting the environmental impact of changes in flows will improve, it would be foolish to base policy for future water use plans on that assumption. Instead, we should assume that the complexity and diversity will remain the same, or perhaps increase as more case studies are examined.

Many BC Hydro members continue to be troubled by the fact that the results of the Alouette Fish Flow Study were questioned, and additional modeling was requested by BCMELP and DFO members. This was described by some BC Hydro members as the government members going back on their word, or trying to change the terms of reference of the study. Their solution, described in Chapter 8, was to agree up front to the detailed terms of reference, which everyone has to stick with no matter what the outcome.

I understand that the process by which these various modeling alternatives was decided upon in the AWUP was perhaps arbitrary, a process which should be improved on in the
future. However, just because it was not particularly pleasant for BC Hydro's technical staff to negotiate does not mean that the solution is to force everyone to stick to terms of reference regardless of the outcome. Suggesting that the committee simply stick to the terms of reference could result in some people officially burying their concerns, while engaging in "trouble-making" tactics and finding unofficial ways to influence the process. This could be extremely counterproductive to building trust in the Water Use Planning process.

The alternative is not an unprincipled free-for-all. Setting the terms of reference for technical studies could involve a hierarchy of steps, in which more detailed descriptions of methodology are nested within general goals. The technical committee may then agree to review the progress of the study at key points, in order to ensure that the study is following the terms of reference. As well, the detailed terms of the study should also be reviewed, to determine if the terms continue to reflect the goals of the study, given what has been learned from the study to date. This mechanism would facilitate negotiation, while at the same time not choke the technical studies process with negotiating every detail. Meetings held to discuss the compliance of the study with its goals and terms of reference may also be a useful time for involving members of the wider public in technical studies, in that the discussion would be at a broad scale which is somewhat more accessible to non-technical people. If the previous recommendation were carried out and government agencies were more substantively involved in technical studies, there would be less controversy about changes to study approach and methodology.

By structuring the technical studies using the negotiative model, some of the "trouble-making" responses to the adversarial model may be avoided. Further, the negotiations carried out by the technical committee need not result in consensus, but may result in several potential answers to the questions they are asked, which can be weighed by the stakeholder committee. Thus the technical study process should reflect scientific practice, but may not reflect scientific norms such as keeping debate within a scientific community until consensus is reached. Almost 20 years has passed since the development of instream methods such as IFIM, and despite wide application throughout the US, biologists continue to be divided. In areas of science such as instream flow methods in which there is wide disagreement between experts, it is better to take an adaptive and iterative research approach than assume that scientists will eventually reach consensus.
Finally, scientists should be allowed to participate in the multi-stakeholder process more fully. This took place to some extent in the ASC when technical experts made presentations and were questioned by the committee; this involvement could be extended further. While much of this thesis has focussed on how members of the public can be enabled to contribute their knowledge and values to water use planning, the sense of alienation among some scientists indicates to me that they are frustrated with their level of involvement. Perhaps we need to begin thinking about scientists as sources of values judgement as well as facts.

- **Devise ways of including public participation in technical studies.** It is important to involve the public not only in the negotiation of a water use plan, but in the process of generating technical information to support that plan. That does not mean that every stakeholder committee member should be involved in every aspect of the technical studies, or would be interested in that level of detail. Rather, mechanisms for involving stakeholders in a way that value their knowledge and input and create opportunities for shared learning should be developed.

As previously suggested, the same periodic progress review used to incorporate negotiation into the technical studies could be used to get input from a stakeholder committee at key points. The stakeholder committee could be involved in setting the terms of reference of a study and ensuring that the study continues to fulfil the goals it is mandated to.

- **Learn From Community Expertise.** An element which was a key factor to building the trust of Alouette Stakeholder Committee members in the technical information was the ongoing involvement of Geoff Clayton as a “community expert” in the technical study. Finding a “community expert” who has the time, expertise and interest could prove to be fairly difficult in some situations. Geoff Clayton made a suggestion which is worth considering. Part of a WUP committee could be composed of trusted local representatives,

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4 This is congruent with the findings in the risk perception literature, which suggest that people trust information sources that are closest to them, such as friends and relatives, much more than they trust expert based analyses based on large samples -- the so called law of small numbers (Axelrod and McDaniels, 1998).
while another sector of the committee could be composed of trusted ENGOs that have some expertise in instream flow issues. The ENGO portion of the committee would be portable and provide a greater level of trusted expertise in areas of the province where no local expertise exists.

GC And in some of these rural areas, the public, you know, can't necessarily reach into their bag and pull out the right people, that either, one, have the time, because it does take a considerable amount of time, and number two, that has the expertise. I felt, maybe they should look at portable group that can be moved, that would pick up maybe one or two people in the community, key people, but would have that credibility of acceptance, by -- BC Federation of Wildlife, Flyfishers Association of British Columbia, the Steelhead Society of British Columbia, people such as that could very well be used in a portable process.

The challenge to involving community people in the science of instream flow studies is also to technical people, who need to further break out of their narrow discourses and begin learning how to communicate with those outside of their disciplines. This communication goes beyond just presenting information; it means learning to listen to the knowledge of non-technical people with understanding. These kinds of skills need to be fostered within the technical departments of the organizations involved in Water Use Planning, and in the educational institutions that train scientists, engineers and technicians.

11.2.3 Greater Openness And Opportunities For Learning In Overall Water Use Planning Policy

- **Extend the openness of WUP stakeholder committees to the policy level.** The previously suggested advisory committee could play a role as the province wide policy for Water Use Planning evolves. At present, WUP policy is overseen by an interagency management committee involving provincial and federal government agencies, and may also include a representative from the BC Aboriginal Fisheries Commission (BC AFC) (an organization which involves many of BC's First Nations and functions as a co-ordinating body between First Nations and government). Figure 11.1 shows the management structure as described in a recent presentation by a member of BCMELP. Steering and policy committees above the management committee serve to provide direction from senior bureaucrats and politicians.
But while the WUP management committee is thinking about involving First Nations, they should extend that openness to a wider range of stakeholders. The role of the steering committee is critical, in that it will have a role in deciding on priorities within the hydroelectric system, and making system-wide trade-offs. The WUP guidelines contain no explicit provincial policy for how water use plans will be integrated together. In this vacuum, a discussion needs to be carried out in order that these provincial trade-offs be made explicitly, rather than implicitly through dozens of individual water use plans.

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5 Adapted from a presentation by Pieter Bekker, BCMELP Water Management Program, at the Canadian Water Resources Association’s Water Use Planning Panel Discussion, November 19, 1998.
Consultative:

The previously suggested multi-stakeholder advisory committee for Water Use Planning could provide valuable feedback to the inter-agency WUP management committee as it is faced with making public policy decisions. If government agency representatives are uncomfortable with opening up the WUP management directly to outside stakeholders, they could consider the public advisory committee as a fifth advisory team. Thus they would be free to carry on discussions at a government-to-government level, while still getting meaningful input from a wider range of stakeholders.

Bargaining:

The inter-agency WUP management committee and the public advisory committee could be amalgamated into a multi-stakeholder WUP management committee. As was previously suggested, this committee could have a role in facilitating the process by which members of WUP tables are selected, and technical consultants and facilitators are hired. The committee could also play a role in actively managing or overseeing the financial side of the WUP process. This approach would bring more meaningful public participation at provincial level. Given the level of diversity of such a management committee, it would tend to ensure that meaningful participation also occurred at the local level.

- **Build mechanisms for learning about both the substance and process of Water Use Planning.**

JV  Say you were hypothetically to go into the same situation again. What things do you think could have been different, maybe to improve it, resolve conflicts more easily?

JH  The first thing I would do if I was involved with the process with another group is explain some of the things we learned from this one.

The final report of the Alouette Stakeholder Committee process emphasised the importance of learning -- indeed learning and managing adaptively was one of the objectives of the process. This idea should be expanded in future WUP processes by building in mechanisms for learning about the process of Water Use Planning, as well as its substance. Although mechanisms for passing on the knowledge gained in the AWUP may exist within government ministries and BC Hydro, there have been limited attempts at creating a dialogue which involves a broader range of participants. Recent forums such as the Canadian Water Resources Association sponsored panels on Water Use Planning held
in Vancouver and Victoria on November 17 and 19, 1998 represent a start. Further mechanisms should be built into each Water Use Planning processes, such as sponsoring participants in completed WUP processes to speak to those embarking on processes, carrying out evaluations of WUP processes which are made publicly available, and compiling a database of lessons learned at individual WUPs.

I feel that information relating to Water Use Planning processes, such as meeting minutes and process evaluations, needs to be made accessible to any interested member of the public. Such information relating to the Alouette Water Use Plan was not readily made available to me as a carried out this thesis. Given that public policy decisions are being made which potentially affect every British Columbian, and that Water Use Planning is an attempt at transparent decision making, such openness is key for the ongoing credibility of the Water Use Planning program. Having as much information available as possible contributes to learning about the process of Water Use Planning, which is the only way that future Water Use Planning processes will be improved.

11.3. Reflections

It could be argued that the ethnographic approach I have taken to studying the Alouette Water Use Planning process weakens the conclusions I am drawing. Even as I finished writing, I had second thoughts about the product of the analysis, which at times seems rambling and less than concise. Although I have never had any illusions about quantitative surveys being more rigorous than qualitative, the ease with which numbers summarize findings was certainly a temptation. Instead of adopting a more quantitative approach, I think that I would deal with the question of clarity and conciseness by focusing on a smaller set of criteria, rather than changing the approach. As it was, the evaluation of the AWUP process was based on eight criteria, which were further subdivided resulting in seventeen sub-criteria. By focusing on half the criteria, it would have been possible to spend more time structuring and synthesizing the evaluation in a more concise manner.

I would retain the qualitative approach because it adds to the study in several ways. First, it breathes life into multistakeholder processes, which are after all simply the interactions of a group of people over time. Second, the approach is more easily adaptable in the field than a survey style approach in which every interview must follow an identical pattern. This
allows for the interviews to follow the interests of each interview participant more closely. I think that I probably would have missed several key results if I had simply asked a set of fixed questions.

The natural question to ask is whether I would change anything if I were to do it all over again. I would probably make some changes in the approach I took to fieldwork. If I had the opportunity, I would have tried to participate in the process itself, which would have especially valuable in identifying pivotal events within the process for further research. It also would have also been useful to conduct both pre and post-process interviews, in order to track changes in the views of participants over time. This would have increased the quantity of work to be done, but it would have been extremely useful in identifying the subtle ways in which multistakeholder processes affect their participants. Often, the most important changes are those which are taken for granted.

There was one major substantive area which I would put more emphasis on, the relationship and accountability between multistakeholder processes and the wider public. In order to adequately address this question, it would be necessary to expand the scope of the project beyond the borders of the process itself. For example, interviews with participants in a multistakeholder process could be compared with interview with those outside of the process. This would provide insight into whether information is exchanged between stakeholder representatives and those whose interests they claim to represent, and how such information is facilitated (formal meetings, word of mouth, mass media, etc.). Such an understanding is crucial if the decisions of multistakeholder processes are to be taken seriously in the long term.
References


BCRTEE 1994. Local Round Tables, Realizing Their Full Potential. British Columbia Round Table on the Environment and Economy, Commission on Resources and
Environment, Fraser Basin Management Program, and the National Round Table on the Environment and the Economy.


Connor Development Services Ltd. (Prepared for The Nootka Sound Stability Coalition).


Secondary Data Sources


BC Hydro 1996. Alouette Generating Station Water Use Plan. Vancouver, BC:


Costello, M. 1996. Letter to The Honorable Dan Miller, BC Minister of Employment and Investment from Michael Costello, President and Chief Executive Officer of BC Hydro. Re: Stave Falls Powerplant Replacement Project: Request to Change Disposition Order. Vancouver, BC:


Hirst, S.M. 1991b. Impacts of the Operation of Existing Hydroelectric Developments on Fishery Resources in B.C. Vol. II. Inland Fisheries. 2093, Vancouver, B.C. Department of Fisheries and Oceans.


## Appendix A. Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>Alouette River Flood Communication Task Team</td>
</tr>
<tr>
<td>AMC</td>
<td>Alouette Management Committee</td>
</tr>
<tr>
<td>ARFN</td>
<td>Alouette River Field Naturalists</td>
</tr>
<tr>
<td>ARMC</td>
<td>Alouette River Management Council (successor to the ARMG)</td>
</tr>
<tr>
<td>ARMG</td>
<td>Alouette River Management Group (succeeded by the ARMC)</td>
</tr>
<tr>
<td>ARMS</td>
<td>Alouette River Management Society</td>
</tr>
<tr>
<td>ASC</td>
<td>Alouette Stakeholder Committee</td>
</tr>
<tr>
<td>AWUP</td>
<td>Alouette Water Use Plan</td>
</tr>
<tr>
<td>BCMEI</td>
<td>British Columbia Ministry of Employment and Investment</td>
</tr>
<tr>
<td>BCMELP</td>
<td>British Columbia Ministry of Environment, Lands and Parks</td>
</tr>
<tr>
<td>BCMELP-FWHP</td>
<td>BCMELP, Fish, Wildlife and Habitat Protection</td>
</tr>
<tr>
<td>BCMELP-WMP</td>
<td>BCMELP, Water Management Program</td>
</tr>
<tr>
<td>BCMEMPR</td>
<td>British Columbia Ministry of Energy, Mines and Petroleum Resources</td>
</tr>
<tr>
<td>BCF</td>
<td>British Columbia Forest Service</td>
</tr>
<tr>
<td>BCRTEE</td>
<td>British Columbia Round Table on the Environment and the Economy</td>
</tr>
<tr>
<td>BCWF</td>
<td>British Columbia Wildlife Federation</td>
</tr>
<tr>
<td>CORE</td>
<td>Commission on Resources and Environment</td>
</tr>
<tr>
<td>DFO</td>
<td>Department of Fisheries and Oceans, Canada</td>
</tr>
<tr>
<td>DMR</td>
<td>District of Maple Ridge</td>
</tr>
<tr>
<td>ENGO</td>
<td>Environmental Non-Government Organization</td>
</tr>
<tr>
<td>ESOR</td>
<td>Electric System Operations Review</td>
</tr>
<tr>
<td>FBC</td>
<td>Fraser Basin Council (successor to the FBMB)</td>
</tr>
<tr>
<td>FBMB &amp;</td>
<td>Fraser Basin Management Board and Program</td>
</tr>
<tr>
<td>FBMP</td>
<td>(succeeded by the Fraser Basin Council)</td>
</tr>
<tr>
<td>FFS</td>
<td>Fish Flow Study (on the Alouette River), also referred to as the Instream Flow Study</td>
</tr>
<tr>
<td>IFIM</td>
<td>Instream Flow Incremental Methodology</td>
</tr>
<tr>
<td>IWMP</td>
<td>Integrated Watershed Management Plan</td>
</tr>
<tr>
<td>KFN</td>
<td>Katzie First Nation</td>
</tr>
<tr>
<td>LLO</td>
<td>Low Level Outlet in the Alouette dam, which controls flows from Alouette Lake Reservoir into the Alouette River below the dam</td>
</tr>
<tr>
<td>LRMP</td>
<td>Land Resource Management Plan</td>
</tr>
<tr>
<td>SLDF</td>
<td>Sierra Legal Defence Fund</td>
</tr>
<tr>
<td>WUP</td>
<td>Water Use Plan</td>
</tr>
</tbody>
</table>

Note: Some of these abbreviations may not be used officially, but were used to simplify the text.
Appendix B. List of Interviews With ASC Participants

A total of 19 interviews were carried out with 18 different ASC participants, mainly over the period of November 1997 to July 1998. One interview (with Daryl Fields) had been carried out previous to the thesis research, in relation to other course work carried out at UBC and was used as an additional source of data. Interviews were carried out with representatives of all of the organizations involved in the ASC. In some cases (such as BC Hydro and BCMELP), there had multiple or alternating representatives, and in that case only one interviewee was selected. Several individuals who made presentations to the committee, or who were involved in its facilitation and planning were also interviewed. The interviews are listed below in Table B.1, and are given in the order of the interview codes used to identify the voice in the text. The code is simply the first and last initial of the interviewee.

Table B.1 Interviews with ASC Participants

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Organization</th>
<th>Interview Location</th>
<th>Date*</th>
</tr>
</thead>
<tbody>
<tr>
<td>DD</td>
<td>Mr. Drew Dunlop</td>
<td>Power Supply Operations, B.C. Hydro</td>
<td>Burnaby</td>
<td></td>
</tr>
<tr>
<td>DF</td>
<td>Ms. Daryl Fields</td>
<td>Public Consultation, B.C. Hydro</td>
<td>1. Vancouver</td>
<td>Dec 10/96, June 25/98</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Vancouver</td>
<td></td>
</tr>
<tr>
<td>DM</td>
<td>Ms. Denise Mullen-</td>
<td>Power and Projects Unit, BCMEI</td>
<td>Victoria</td>
<td>Nov 28/97</td>
</tr>
<tr>
<td></td>
<td>Dalmer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FW</td>
<td>Mr. Frank Ward</td>
<td>Alouette Field Naturalists</td>
<td>Maple Ridge</td>
<td>Jan 16/98</td>
</tr>
<tr>
<td>GC</td>
<td>Mr. Geoff Clayton</td>
<td>Alouette River Management Society</td>
<td>1. Maple Ridge</td>
<td>Nov 27/97</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Phone Interview</td>
<td>Oct 19/98</td>
</tr>
<tr>
<td>GL</td>
<td>Mr. Graham Lorimer</td>
<td>Vancouver Parks District Office, BCMELP</td>
<td>North Vancouver</td>
<td>Nov 27/97</td>
</tr>
<tr>
<td>GM</td>
<td>Mr. Greg Mallette</td>
<td>Regional Co-ordinator, Fraser Basin Council (was Fraser Basin Management Board)</td>
<td>Vancouver</td>
<td>Nov 21/97</td>
</tr>
<tr>
<td>JB</td>
<td>Mr. James Bruce</td>
<td>Strategic Fisheries Department, BC Hydro</td>
<td>Burnaby</td>
<td>Jan 6/98</td>
</tr>
<tr>
<td>JH</td>
<td>Mr. Jon Harris</td>
<td>Former Councillor, District of Maple Ridge</td>
<td>Maple Ridge</td>
<td>Jan 16/97</td>
</tr>
<tr>
<td>LB</td>
<td>Ms. Lynn Baxter</td>
<td>Director of Engineering - Design, District of Maple Ridge</td>
<td>Maple Ridge</td>
<td>Jan 16/98</td>
</tr>
<tr>
<td>Code</td>
<td>Name</td>
<td>Organization</td>
<td>Interview Location</td>
<td>Date*</td>
</tr>
<tr>
<td>------</td>
<td>---------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>--------------------</td>
<td>---------</td>
</tr>
<tr>
<td>MM</td>
<td>Mr. Mike Murray</td>
<td>Director, Parks and Community Services, District of Maple Ridge</td>
<td>Maple Ridge</td>
<td>Jan 9/97</td>
</tr>
<tr>
<td>MR</td>
<td>Dr. Marvin Rosenau</td>
<td>Fish, Wildlife and Habitat Protection, BCMELP</td>
<td>Surrey</td>
<td>Dec 1/97</td>
</tr>
<tr>
<td>RB</td>
<td>Mr. Rick Bailey</td>
<td>Councillor, Katzie First Nation</td>
<td>Katzie Indian Reserve.</td>
<td>Dec 2/97</td>
</tr>
<tr>
<td>RG</td>
<td>Dr. Robin Gregory</td>
<td>Adjunct Professor, School of Community &amp; Regional Planning/Institute for Resources &amp; Environment (Consultant/Facilitator for the ASC)</td>
<td>Vancouver</td>
<td></td>
</tr>
<tr>
<td>RP</td>
<td>Mr. Richard Penner</td>
<td>Head, Licensing &amp; Analysis Unit, Water Management Branch, BCMELP</td>
<td>Victoria</td>
<td>Nov 28/97</td>
</tr>
<tr>
<td>SM</td>
<td>Mr. Steve Macfarlane</td>
<td>Dep't. of Fisheries &amp; Oceans</td>
<td>New Westminster</td>
<td>Dec 16/97</td>
</tr>
<tr>
<td>TC</td>
<td>Mr. Tom Cadieux</td>
<td>Former Chair, Alouette River Management Council</td>
<td>Maple Ridge</td>
<td>Dec 15/97</td>
</tr>
<tr>
<td>TC</td>
<td>Mr. Tom Charters</td>
<td>Local Resident and member of Alouette Flood Communication Team</td>
<td>Maple Ridge</td>
<td>Jan 9/98</td>
</tr>
<tr>
<td>TM</td>
<td>Dr. Tim McDaniels</td>
<td>Associate Professor, School of Community &amp; Regional Planning/Institute for Resources and Environment (Consultant/Facilitator for the ASC)</td>
<td>Vancouver</td>
<td>Jan 15/98</td>
</tr>
</tbody>
</table>

Two other ASC participants were contacted to be interviewed, but did not return my phone calls. According to many of the other participants, they were not very active in the committee, thus I did not make any further attempts at contacting them.
Appendix C. Interview Materials

Letter of Recruitment

I am writing to inquire if you are interested in participating in some research that I am conducting. I am a graduate student at the University of British Columbia in Resource Management and Environmental Studies. As part of my master's thesis, I am studying the public consultation meetings that were part of a review of the water flows in the Alouette River, often referred to as a “Water Use Plan”. I am interested in hearing about the experiences of those who participated in the meetings, and in this way evaluate the process that was carried out. Given that similar reviews are planned for at least ten other hydro developments around the province, it is important to understand whether or not the Alouette process provides a good model for how to involve the public in resource management.

My research is being carried out under the supervision of Professor Tony Dorcey of the Institute for Resources and Environment at U.B.C, who can be reached at 822-5725. Besides the thesis, the results of the research may also be published in an academic journal. A summary report of the research results will be distributed to any participant who wishes to have a copy. Funding for the research is being provided by the Natural Sciences and Engineering Research Council.

The study will involve an interview with each participant of approximately one hour in length. Because of your involvement with the Alouette Stakeholder Committee, I would very much appreciate an opportunity to interview you. However, your participation is entirely voluntary, and you may refuse to participate or withdraw from the study at any time, without prejudice. All information will be kept strictly confidential unless you consent to be identified in the thesis or other publications.

If you have any questions or concerns about this study, please do not hesitate to call me or my supervisor, Professor Tony Dorcey. I will contact you by phone to confirm whether or not you are interested in participating, and to arrange a mutually agreeable time and place for us to meet.

Sincerely,

Jim Vanderwal
Informed Consent Form

NEGOTIATING RESTORATION: INTEGRATING KNOWLEDGES ON THE ALOUETTE RIVER, BRITISH COLUMBIA

Principal Investigator: A.H.J. (Tony) Dorsey, Institute for Resources and Environment, Phone: 822-5725.


The purpose of this study is to evaluate the public participation process that took place as part of the development of the Alouette Water Use Plan for the Alouette River, near Maple Ridge, B.C.. I am interested in why participants chose to participate in this planning process, and how they felt about taking part in it. As well, I hope to find out what worked well, the kind of problems participants encountered, and what sort of advice they would give to participants in future processes.

The research is being carried out by the co-investigator, Jim Vanderwal, as part of his Master’s thesis. The study will involve an interview of approximately one hour, which will be carried out in the participant’s home, place of business or other location where he or she will be comfortable. With their consent, the interview will be tape recorded; if this causes any discomfort, the interviewer will take notes instead. In addition to the thesis, the research may also be used in a paper published in an academic journal. Upon request, each participant will be given a summary report of the research results, as well as a transcript of his/her own interview.

Confidentiality:

Any information resulting from this research study will be kept strictly confidential. The tapes and transcripts will be available only to Mr. Vanderwal and his supervisory committee. In order to ensure confidentiality, all documents will be identified only by code number and kept in a locked filing cabinet. Most quotations will be structured anonymously, something like: “... a local resident stated that ...”. Participants will not be identified by name in the thesis or related publications unless they consent. The text of any quotations which identify the research participants by name will be confirmed with them before use in any publication.

Contract:

If I have any questions or desire further information with respect to this study, I may contact either of the investigators at the phone numbers given above. If I have any concerns about my treatment or rights as a research subject I may contact the Director of Research Services at the University of British Columbia, Dr. Richard Spratley at 822-8598.
Consent:
1. I understand that my participation in this study is entirely voluntary and that I may refuse to participate or withdraw from the study at any time without prejudice.
2. I have received a copy of this consent form for my own records.
3. I consent to participate in this study.

Subject Signature            Date

Signature of a Witness        Date
SAMPLE INTERVIEW QUESTIONS

Jim Vanderwal

INTRODUCTION

It seems only fair that if I am asking you questions about yourself that I tell you a little bit about myself. I am a graduate student in the Resource Management and Environmental Studies programme at U.B.C., and one of my interests is in the effects of hydro development. I am interested in the ways in which decisions are made in trying to rehabilitate rivers impacted by development, the knowledge that is used to make those decisions, and the role of the public in decision making. These interviews are part of my thesis work and I see them as one of my most valuable sources of information about the Alouette Water Use Plan. You should feel free to express your opinions, your opinions matter.

With your permission, I would like to tape record the interview. I will only be using the recording for my own purposes, so that I can make more detailed notes later and don't have to madly scribble notes as we talk. I would be glad to send you a transcription or recording of the interview if you like. I hope to make a presentation in the Maple Ridge area to summarise the interviews I have carried out, which you would be welcome to attend.

What I would like to do is start with the talking about the process, then discuss the results themselves. After that, we can pick up any of the loose pieces.

PROCESS

What is it like to be a “stakeholder”?

- To start off with, can you tell me how you became involved in the Alouette Stakeholder committee?
- How do you feel about your experience with the stakeholder committee? Did things turn out as you hoped they would have?
  - If negative experiences indicated - Why did you stick with it? If positive - what were they the things that made it a good experience?

What was it like to sit on the “Stakeholder Committee”?

- What was your impression of the process used to run the ASC?
- Do you think the Stakeholder Committee had everyone on it who needed to be on it? Can you think of anyone else who should have been represented?
- Are you used to the kind of negotiating that took place on the committee? How would you compare your other experiences in negotiation with the Alouette Stakeholder Committee?
- Did you think that your views were listened to? Did anyone dominate the discussion?
- What was your impression of the facilitators? Why? Did you feel like you understood what they were doing and could trust them?
• Were there any significant controversies during the committee meetings? Can you describe what they were & how they were resolved?
• Did the ASC members have a say in how the process ran? What would have happened if they had more of a say?
• Did you know any of the other members of the committee before the consultation? How important were the relationships which existed outside of the negotiating table to reaching a decision?
• Each of the committee members had to put their own resources -- time, money -- into the process? Was it worth it for you

Policy - esp. for gov't people
• What drove the Water Use Plan to be carried out?
• Why did the disposition order for Stave Falls include the requirement that BC Hydro consult various stakeholders and come up with an operating plan for the Alouette River?
  • If changing values indicated -- how do we know values have changed?
• How does the Alouette Water Use Plan relate to other policy initiatives in energy and water resources?
  • Electrical System Operation Review - some people see this as an incomplete response of prov. gov'ts request that BC Hydro review licences & impact on other uses of water.
  • Watershed based approaches to planning (e.g. multi-issue)

RESULTS

EVALUATION - Was the end result a good one?
• What do you think of the final result? Why?
• Was it what you expected at the beginning?
• Was it the best solution? Are there any unresolved issues remaining?
• Do you think that there are people in the community outside of the committee that are not satisfied with the result? Should the views of these people be considered as well?

SCIENTIFIC KNOWLEDGE AND UNCERTAINTY
How was science used in the discussions - was it understandable? confusing?
• Were there any discussions about the "measures" that would be used for each of the various objectives - fisheries, recreation, power, flooding? Any conflicts over what those measures should be?
• Did you think that the scientific or 'technical' studies that were used to provide information to the committee were credible? Why or why not?
• Were some of them more credible than others (e.g. recreational values - fisheries - flooding - water licensing).
• Was this kind of information understandable? Was there anything that helped you understand it?
• Were the individual scientists able to communicate well with the committee?
• Was any of the science controversial when it was presented?
• How much do you trust the indicators of fish habitat, value of power, recreational values etc. that were presented in the negotiations? Why or why not?
• In the end, how important do you think that these kinds of studies were/should be in making decisions about the Alouette River?
• BC Hydro generated information on the amount of money it would cost to put more water back into the Alouette River? How much did you trust this information?
• Were there other values that were not priced that should have been? Would economic information have made things clearer or confused the issues?

LAY KNOWLEDGE - Should there have been a greater role for lay knowledge?
• What kinds of knowledge did you bring to the table? Was it well used by the process?
• Do you think the knowledge each of the participants brought to the table was well used?
• Was there lay knowledge among the ASC members which was of value in making decisions?
• Were other kinds of information important to you in deciding in your own mind about instream flow? What were they? Why are they important?
• Should lay knowledge have been more important in decision making? [If yes - Do you think it would have changed the result? If no - Are there other kinds of decisions in which local knowledge would be more important?]

ALOUETTE MANAGEMENT COMMITTEE - permanent body created to monitor ongoing programme
• As I understand it, not everyone from the stakeholder committee is on the management committee (the ongoing management body for the Water Use Plan). How did that come about?
• [If on the management committee] Why did you [your agency] end up on the management committee? What issues do you hope the committee will address?
• [If not on the committee] Why did you [your agency] not end up on the management committee? What do you think your relationship with the committee will be?
• Do you think the management committee has a large role in improving the health of the river? If so, how?

REFLECTIONS
• Can you think of anyone else (especially outside of committee) I should talk to who is interested in or knowledgeable about the Alouette River but was not part of the Stakeholder Committee?
• Is there anything else you would like to add? Have we missed anything?
Appendix D. Description of Alouette Flood Communication Plan

The Alouette Flood communication fan-out system serves to alert local residents of potential flood conditions. The floodplain is divided into five areas, which are each assigned Area Captain. There are an additional two Area Captains for the Katzie First Nation and the Alouette Correction Centre. The Senior Area Captain begins the fanout communication process when s/he receives notice from the BC Hydro. The Senior Area Captain notifies all seven Area Captains, who in turn notify the River Officers who are responsible for notifying residents within their section of the area.

The communication system operates differently, depending on the seriousness of the flood threat, using a series of alert levels as described in Table D.1.

Table D.1. Alouette Flood Communication Plan

<table>
<thead>
<tr>
<th>Alert Level</th>
<th>Trigger</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Water is less than 1 metre below free spill crest and inflows forecasted for the next 48 hours would result in bank full conditions at 232nd Street.</td>
<td>Notification of senior level of the network at the municipality, R.C.M.P, District of Maple Ridge, Fire Department and Senior Area Captain. BC Hydro updates its phone line once a day. Activation of internal plans by BC Hydro, Maple Ridge and Senior Area Caption. Notify residents with special needs.</td>
</tr>
<tr>
<td>Green Alert - Level 1</td>
<td>Inflows forecasted for the next 24 hours would result in bank full conditions at 232nd Street.</td>
<td>Same as level 1, except that Search &amp; Rescue and Provincial Emergency Program also notified (PEP). BC Hydro updates its phone line three times a day.</td>
</tr>
<tr>
<td>Green Alert -- Free Crest Spill</td>
<td>Water is spilling over free crest.</td>
<td>BC Hydro to inspect dam spillway at least twice a day for debris jams and other safety concerns. Flood response plans to be discussed between RCMP and District of Maple Ridge.</td>
</tr>
<tr>
<td>Yellow Alert</td>
<td>Water is spilling over the free crest and bank full conditions are exceeded at 232nd Street.</td>
<td>Begin evacuation if appropriate, based on forecasted flow levels and map of areas that will be flooded at various discharges.</td>
</tr>
<tr>
<td>Red Alert</td>
<td>Very serious situation (e.g. dam break).</td>
<td>Not a consideration of Alouette River Communications as it becomes a disaster as defined by the Provincial Emergency Program.</td>
</tr>
</tbody>
</table>

Appendix E. Multiple Account Evaluation (MAE) Guidelines

MAE Guidelines were developed by the Crown Corporations Secretariat, the provincial government body which is responsible for BC Hydro and other crown corporations (BCCCS, 1993). This approach is an adaptation of traditional benefit-cost analysis, the major difference being that values are left unaggregated instead of being summed to produce total "cost" or "benefit" categories. Because they are not aggregated, a common metric, such as dollars, need not be applied to all of the accounts – indeed some accounts may be 'qualitative' rather than 'quantitative'. The CCS identify five accounts which "In general... cover the major concerns and objectives of government" (ibid.), which are described below in Table E.1

<table>
<thead>
<tr>
<th>ACCOUNTS</th>
<th>DESCRIPTION</th>
<th>MEASUREMENT TECHNIQUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Performance</td>
<td>&quot;revenue and expenditure implications of the alternatives from both a corporate and broader government perspective.&quot;</td>
<td>Calculation of net present value of predicted annual net revenues to the crown corporation and government, using 8% discount rate.</td>
</tr>
<tr>
<td>Customer Service</td>
<td>&quot;the net benefit or value customers or users derive from the alternatives.&quot;</td>
<td>Calculation of customers' willingness to pay, preferably based on market research or demand curves. If these are not available, &quot;qualitative&quot; assessment may be carried out by identifying the nature of the benefit/cost, and the number of customers affected.</td>
</tr>
<tr>
<td>Environment</td>
<td>&quot;the nature, magnitude and significance of the major biophysical and natural resource impacts of the alternatives.&quot;</td>
<td>Various impacts could be relevant, which could be assessed in monetary or non-monetary terms. Monetary terms require estimated of the social external cost/benefit, using various willingness to pay/willingness to be compensated techniques. Not a detailed environmental assessment, only what is necessary to &quot;make explicit any key trade-offs that management and Boards should consider...&quot;</td>
</tr>
<tr>
<td>Economic Development</td>
<td>&quot;the nature, magnitude and significance of the income and employment impacts of the alternatives.&quot;</td>
<td>Measured though the incremental income generated by each alternative - the increase in pre-tax income for people who would otherwise be unemployed or underemployed. Alternatively, a qualitative assessment in terms of the long run economics.</td>
</tr>
<tr>
<td>Social</td>
<td>“the major impacts of the alternatives on the social fabric and values or goals of directly affected communities or groups...”</td>
<td></td>
</tr>
<tr>
<td>Varies with project - could include impacts on population stability, services, quality of life, or equity/distributional considerations. Conversion to monetary measures is not recommended.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

quotations from (BCCCS, 1993)

The Crown Corporations Secretariat stresses the need to compare between alternatives, rather than simply analyse one project, because the accounts by themselves do not provide the criteria necessary to judge a project, unlike in the case of benefit-cost, where presumably a ratio greater than 1.0 is "good". Rather, evaluation takes place by comparing the accounts produced by different alternatives. How this evaluation takes place is not explicitly specified, although they felt that "Trade-offs will generally have to be made." *(ibid.)*
Appendix F. Description of Alouette, Stave and Ruskin Hydroelectric Systems

Taken from (BC Hydro, 1993):

Alouette

General Information

Project Name: Alouette
Dam Name: Alouette
Reservoir Name: Alouette Lake
Water Course: Alouette River
Upstream Project: None
Downstream Project: Stave Falls

Description

The Alouette Project consists of a dam at the south end of Alouette Lake and a tunnel from Alouette Lake to the 8 MW Alouette powerhouse discharging into Stave Lake.

History

The dam was built in 1926 and replaced in 1984 with a modern earthfill structure. The powerplant went into service in 1928.

Drainage Basin

Alouette Lake is within Golden Ears Provincial Park.

Inflow

Average annual inflow is about 21 m³/s. Large flood inflows could occur in the late fall.

Reservoir

Reservoir operating range is 9.5 m between El. 116.0 m and El. 125.51 m.

Operating Constraints

Between Victoria Day and Labour Day, the reservoir must be kept above El. 121.25 m for recreation purposes.

A fish flow release of 0.06 m³/s at the dam and a minimum flow of 0.7 m³/s at the 232nd Street Bridge, downstream from the dam. Currently 0.6 m³/s is released from the dam.

Capability

Nameplate Capacity: 8 MW
Turbine type: Francis
Dependable Capacity: 8 MW
Average Energy Capability: 60 GWh
Critical Energy Capability: 50 GWh
Storage: 155 million cubic metres
Stave Falls

General Information

Project Name: Stave Falls
Dam Name: Stave Falls Dam
Reservoir Name: Stave Lake
Water Course: Stave River
Upstream Project: Alouette
Downstream Project: Ruskin

Description

Concrete Dam and 52.5 MW Powerhouse located at the outlet of Stave Lake.

History

First power was produced in 1911. The facilities are presently being considered for redevelopment.

Drainage Basin

The drainage basin includes parts of Golden Ears and Garabaldi Provincial Parks.

Inflow

Average local inflow is about 111 m³/s with another 21 m³/s coming from Alouette. Peak inflows occur during late fall rain events.

Reservoir

Operating range of the reservoir is about 9.1 m.

Operating Constraints

Releases from Stave Falls must be coordinated with releases from Ruskin for fisheries purposes during the period October 1 to July 15.

Capability

Nameplate Capacity: 52.5 MW
Turbine type: Francis
Dependable Capacity: 50 MW
Average Energy Capability: 310 GWh.
Critical Energy Capability: 270 GWh.
Storage: 468 million cubic metres
Ruskin

General Information

Project Name: Ruskin
Dam Name: Ruskin
Reservoir Name: Hayward Lake
Water Course: Stave River
Upstream Project: Stave Falls
Downstream Project: None

Description

Concrete dam and powerhouse on the Stave River near its confluence with the Fraser River. The 105.6 MW powerhouse contains three generation units.

History

The first two units went into service in 1930 with the third unit following in 1950.

Drainage Basin

Storage reservoir in Stave Lake.

Inflow

Little local inflow. Inflow into Hayward Lake comes mainly from Stave Falls which has an average natural annual inflow of about 111 m³/s and an additional 21 m³/s from the Alouette project.

Reservoir

A peaking reservoir. Water levels generally fluctuate about 3m daily, year-round.

Operating Constraints

Block releases for fish downstream from the powerplant, October through November. Minimum fish flow release of 38.3 m³/s, December to April.

Capability

Nameplate Capacity: 105.6 MW
Turbine type: Francis
Dependable Capacity: 100 MW
Average Energy Capability: 380 GWh
Critical Energy Capability: 320 GWh
Storage: 24 million cubic metres