INSTITUTIONAL ARRANGEMENTS

FOR ENVIRONMENTAL MONITORING:

THE VANCOUVER INTERNATIONAL AIRPORT EXAMPLE

by

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ABSTRACT

Environmental monitoring is essential to prevent further deterioration of our environment and to learn from past experiences. The implementation of large projects often involves a complex array of stakeholders who work together to manage project impacts. Institutional arrangements that include stakeholders in project monitoring have the potential of building collaborative relationships, ultimately producing better decisions.

This study evaluated the performance of the Environmental Monitoring and Implementation Committee (EMIC) as a mechanism for stakeholder involvement in the monitoring of the Parallel Runway Project at Vancouver International Airport. The evaluation was based on a framework of criteria that considered process aspects as well as outcomes. A questionnaire was developed from the criteria, and used in interviews with 18 past EMIC members to obtain their perspectives as process participants.

EMIC was effective in developing lines of communication between the Vancouver International Airport Authority, which was responsible for project construction, and other stakeholders. Conversely, the Canadian Wildlife Service, the Department of Fisheries and Oceans, and Transport Canada, responsible for some aspects of implementation and impact management, were not supportive of a collaborative monitoring process. EMIC had only a minor influence on the airport authority's environmental performance.

This study identifies general issues in the design of institutional arrangements for monitoring. It stresses the importance of tailoring participation processes to the circumstances, of investing considerable time in designing a fair and integrated process, and of ensuring the support of all participants. Given the complexity of administrative systems for environmental management, further attempts at establishing collaborative relationships and documenting the challenges encountered would be beneficial to guide future monitoring initiatives.

A mis padres, Carmen y Jesús

The near-term promise of ecosystem management is as a process to transform organizations and decision-making processes to make them more willing to experiment, innovate, and look beyond themselves in both time and space.

Steven L. Yaffee (1996)

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CWS	Canadian Wildlife Service
DFO	Department of Fisheries and Oceans
EAC	Environmental Advisory Committee
EARP	Environmental Assessment and Review Process
EIS	Environmental Impact Statement
EMIC	Environmental Monitoring and Implementation Committee
SICA	Sea Island Conservation Area
VIAA	Vancouver International Airport Authority
WHACC	Wildlife Habitat Advisory Committee on Compensation
YVR	Vancouver International Airport

Chapter 1

INTRODUCTION

Study overview

Increasing environmental degradation demands management approaches that encourage the collaboration of all affected parties. Institutional arrangements that bring together line agencies, private organizations, and citizen groups have the potential of producing better solutions to environmental problems than agencies and proponents working secretly behind closed doors. Development of large projects is usually the object of much public controversy. Continued stakeholder involvement from planning to implementation stages ensures transparency of decisions and fosters dialogue and understanding.

The Parallel Runway Project at Vancouver International Airport (YVR) was approved in 1992, after many years of public debate and a federal Environmental Assessment Review Process (EARP). Project implementation was subject to 22 EARP Panel recommendations as accepted by the minister of transport. An Environmental Monitoring and Implementation Committee (EMIC) was established in 1992 as an advisory committee "to provide a forum for the public review and assessment of the Vancouver International Airport Authority's Environmental Management Program for the Parallel Runway Project" (EMIC terms of reference). EMIC was terminated with the completion of the Parallel Runway Project in 1996. Studying the success of a public participation effort within its particular context gives an insight not only into the success of this particular experience but also into the strengths and weaknesses of this kind of monitoring model, insights that can be used to improve future efforts.

Purpose and objectives

The purpose of this research is to evaluate a committee established to oversee the implementation and monitoring of the Parallel Runway Project between 1992 and 1996 at

Vancouver International Airport (YVR). The objectives are (a) to develop a framework for evaluating the Environmental Monitoring and Implementation Committee (EMIC) as a mechanism for stakeholder involvement; (b) to evaluate EMIC using this framework and identify its strengths and weaknesses; and (c) to make recommendations for an improved participatory framework for environmental monitoring.

The objectives of this research are operationalized by the following three study questions:

- Did EMIC provide an appropriate opportunity for interested parties to monitor the implementation of the airport authority's environmental program for the Parallel Runway Project?
- What elements favored or hindered EMIC in its efforts to act as an effective forum for public review of implementation activities in this case study?
- What recommendations from the YVR experience can be generalized to strengthen a participatory framework for monitoring the environmental components of large-scale construction programs?

Study significance

This study deals with the notion that involving stakeholders in environmental decision making develops understanding and collaboration, resulting in better decisions. Given that collaborative processes promise an improvement over more traditional bureaucratic decision making behind closed doors, it is important to evaluate whether this is true. Different models of stakeholder involvement have unique attributes. Using a case study to examine one such model, the advisory committee, provides information on the attributes of advisory committees. This information is used to determine areas of success, suggest improvements, and establish what type of situations advisory committees are best suited for. Ultimately, public involvement is both time consuming and expensive, so it should be evaluated the same as any component of a project for effectiveness and efficiency (Praxis 1988, 57).

This case study presents several characteristics that make it interesting to examine. First, EMIC provided an opportunity for public participation during the implementation and

monitoring stages of a large project. Up to that time in British Columbia, public participation in post-approval stages had not been widespread and implementation and monitoring stages had not frequently been studied. Perhaps this occurred because once a project has been approved, public attention turns to other issues. Thus it is important to learn what has, and has not, worked effectively in past experiences for future use in the design of implementation and monitoring arrangements. Second, this case study offers an opportunity for studying public involvement in project implementation once it has concluded, so that the outcomes of the participation process have taken effect and are observable. The evaluation framework in this research can thus make use of both the participation process and its outcomes in order to answer the study questions. Finally, the extensive agency involvement in the project provides a good example to evaluate how the administrative system can improve its decision making by way of institutional arrangements that promote collaboration.

On the other hand, the time delay between the participation process and this research means that participants were asked in 1999 about their perspectives on a process that took place from 1992 to 1996, that is, as much as seven years earlier. The results should always be framed within the context of this time delay between participants' experiences and their answers.

Research Methods

The first part of this study consisted of a review of relevant theory and case-study literature. The theory review included environmental conflict and decision-making processes, collaboration, public participation, and evaluation research. Literature on EMIC and the Parallel Runway Project in general consisted of relevant published documents and the minutes of EMIC meetings, which are available to the public. The compiled information was used to develop an evaluation framework of criteria on process and on outcome, as well as indicators for each criterion (tables 2.4 and 2.5). The

framework is largely based on process evaluations of multiparty regional planning in British Columbia (Duffy et al. 1998; Penrose 1996; Tamblyn 1996; Wilson 1995).

The second part of this research was the application of the evaluation framework to a case study of EMIC. The evaluation was based on the experience and perspectives of those involved in EMIC and in environmental monitoring related to the Parallel Runway Project. A questionnaire was developed based on the criteria indicators in tables 2.4 and 2.5. Most questions were closed with ordered choices and an invitation to comment on answers when appropriate, along with a few open questions. A closed question format was chosen in order to enable some quantification of answers, to compare answers among respondents, and to reduce the length of the interviews. Data were collected through telephone interviews with eighteen past members of EMIC. The questionnaire and quantitative summaries of answers to closed questions are provided in appendix 1. The examination of process documents such as EMIC's annual reports and minutes of meetings complemented the interview data.

EMIC met regularly for just over four years. During that time, representatives of participating agencies and groups changed. This research used purposeful interviewing, choosing interviewees among those that attended most meetings for each participating agency or group whenever possible. The names of respondents and the agencies or groups they represented remain confidential. Fifteen respondents agreed to answer the questionnaire, while an additional three preferred to answer only a few questions or to provide only their own comments on the process.

Responses were analyzed by criteria for themes and issues. Results are reported by criteria in a qualitative format in chapter 4. Quantitative summaries of responses to closed questions supplemented this information, providing information on trends. The answers were scaled for questions 23, 24, 25, 29, 30, and 35, which have multiple parts. The possible answers to closed questions (SA: strongly agree, MA: mildly agree, U or N/A:

undecided or unsure plus not applicable, MD: mildly disagree, and SD: and strongly disagree) were assumed to occur in an interval scale and assigned a value (SA=1.00, MA=.75, U or N/A=.50, MD=.25, and SD=0). Finally, an agreement rating was obtained by averaging all respondents' answers for each question. The resulting ratings are relative to each other and only indicate trends. Quantitative information should not be interpreted outside the context of the qualitative results.

Scope

This study focuses on EMIC as a public participation process during the implementation phase of the Parallel Runway Project at YVR. While EMIC is studied within the context where it occurred, this research project does not examine the Parallel Runway Project in general, its consequences for the environment, other committees involved in the project, or current environmental management at YVR. Generalizations outside the case study are necessarily limited. However, the general issues that emerged from the case data can be extrapolated to other situations under similar conditions.

Report organization

This chapter gives a general overview of the research project and the context within which it takes place. The second chapter reviews relevant literature and proposes a framework of criteria and indicators for process and outcome evaluation of a public advisory group on project implementation and monitoring. Chapter 3 provides the background and conditions that form the setting of EMIC, the process under study. Chapter 4 presents the evaluation results. For each criterion, findings are discussed and brief conclusions are drawn. Finally, chapter 5 concludes the study with a summary assessment of the case study, conclusions, and recommendations for public participation during project implementation and for advisory groups.

Study context

Terminology

The public in this report is not meant to include only private citizens and their organizations and exclude governing authorities. Instead, any individual, group, or organization could be a public, including all levels of government. This research does not differentiate between the public and stakeholders, although sometimes it refers to the broad public, or the general public, to include every citizen. Public and stakeholders are defined in more detail in chapter 2. Sometimes the term involvement is used to refer to a subset of participation activities that are more intensive (Parker, 1998, 14). This report does not differentiate between participation and involvement.

Forms of public participation that involve two-way communication, and are thus meaningful and more intensive, are referred to as collaborative. Parties that see different aspects of a problem collaborate when they explore their differences and search for solutions beyond their own limitations (Gray 1989, 5). Collaboration is an emergent process rather than a state of organization (ibid., 15). In contrast, coordination refers to formal institutionalized relationships, while cooperation involves informal trade-offs and reciprocity in the absence of rules, both static patterns of interorganizational relationships (ibid.). The term dialogue is preferred here to refer to two-way communication exchanges occurring in collaborative processes. Consensus building refers to the process of arriving, through dialogue, to a solution all parties can live with, even though it may not be their most preferred solution (ibid., 25).

Public participation during implementation and monitoring stages

Public participation in project planning and prior to approval is ensured by federal and provincial environmental assessment legislation. Typically, participation in environmental assessments tends to follow an adversarial format and would probably benefit from a greater use of collaborative models. The scope of this study does not include public participation in environmental assessment in general, only following

project approval. Post-approval public participation is not legislated. When it occurs, it is more or less successful depending on the characteristics of the project (Bush 1990). This case study represents one of the few attempts at incorporating collaborative participation processes into environmental assessments. In this sense, this research falls within the area of research aimed at improving the practice of environmental assessment in general, particularly moving from an adversarial style to a more consensual style of making decisions at each stage of the process.

Implementation and monitoring stages need to be studied more. Given the amount of effort that goes into planning stages of either physical projects, programs, or any sort of agreements, it would seem natural to assess how all that work fares during the actual implementation of a project, program, or agreement. Too often, very detailed plans end with vague statements about how implementation will be carried out. Future planning and prediction of impacts would benefit from past and current implementation and monitoring experiences. The EARP panel that reviewed the Parallel Runway Project presented detailed provisions for implementation. This study focuses on a small portion of those provisions, one of the monitoring committees: How did it fare? Was it an experience worth repeating?

Evaluation of Public Participation

Most evaluation research focuses on social programs. The rationale behind these evaluations is to justify public spending in an area where effects are often intangible. Public participation in environmental issues may or may not depend on public funds, but it does nevertheless consume resources and certainly its effects are not always obvious. Provisions for evaluation incorporated into a participation program can ensure that the program is evaluated. Several studies have examined public participation processes in the area of land use planning in British Columbia by looking at process criteria and community capacity outcomes (Parker 1998, 7).

What criteria should be used to evaluate public participation? The results of an evaluation will differ depending on what criteria are chosen. The relative merits of different types of evaluations are discussed in chapter 2 according to the purpose of the research undertaken. Overall, the evaluative criteria should reflect the concepts of fairness, effectiveness, and efficiency. This evaluation has the specific purpose of providing an overall judgment about a participation process and the broad purpose of generating ideas for improving decision making through public participation. The perspective adopted is on how an administrative system can improve its decisions by promoting institutional arrangements that enhance collaboration among stakeholders.

Chapter 2

LITERATURE REVIEW AND EVALUATION FRAMEWORK

The first section of this chapter evaluates the connection between environmental conflict and decision-making processes. Sources of environmental disputes are highlighted as well as how decision-making processes in the public sector may or may not address them. The merits and limitations of collaborative approaches to decision making are explored next. Finally public advisory groups are proposed as an optimal method of stakeholder involvement. The second section focuses on how to evaluate the success of stakeholder involvement processes. A framework of criteria is presented for process and outcome evaluations of stakeholder involvement during project implementation and monitoring.

Environmental conflict and decision making

In recent years there has been increasing conflict surrounding the use and governance of natural resources. Two trends underlie this rise in environmental conflict. Escalating demands on natural resources have caused strife related to their use. A parallel trend is increasing citizen empowerment, creating a well educated public that is concerned over health and lifestyle and does not blindly trust decision makers (Dorcey and Riek 1989, Sadler and Armour 1989). Conflict as a broad concept, referring to the presence of different values in society, is necessary to bring about social change and cannot be resolved. Crowfoot and Wondelleck (1990, 17) differentiated between such notions of conflict and much more specific disagreements, which they refer to as disputes. Particular disputes can be settled, when parties "...find a mutually acceptable basis for disposing of the issues in which they are in disagreement, despite their continuing differences over basic values" (Cormick 1982, 3 in Crowfoot and Wondelleck 1990, 18).

Most environmental disputes can be considered as a product of one or more of three sources. First is the broad conflict among different basic values and interests with respect to natural resource use and management. If existing values were illustrated as a

continuum of priorities, at opposite ends would be environment at one end and economic growth and development at the other . Political and economic power tends to concentrate with those who prioritize economic growth and development. Also contributing to disputes is the fact that benefits and costs of resource development are usually unevenly distributed across society, with a tendency to exacerbate the mentioned power imbalance. A final source of environmental disputes lies in the limitations of our information regarding the behavior of ecosystems and of the economy. Intangible impacts, whether benefits or costs, make it difficult to evaluate options, hence predictions tend to be plagued with uncertainty (Sadler and Armour 1989).

The process of making decisions

A good decision-making process, as described by Gunton and Vertinsky (1991, 3-6) moves through a sequence of steps: goals and objectives are identified, options are evaluated, and the best option is implemented while impacts are monitored. As circumstances change, management strategies are revised. The elements of an ideal model for a decision-making process in the public sector (table 2.1) should ensure that decisions are fair, effective, and efficient.

Table 2.1: Elements of a good decision-making process

1. Formal structure through legislation or regulations
2. Sound information as a basis
3. Effective public participation
4. Time and cost efficiency
5. Flexibility
6. Equitable outcome through compensation
7. Impartial, expert, and accountable decision makers
8. Monitoring of implementation
9. Appeal process
10. Mediation and negotiation techniques to reduce

Source: Adapted from Gunton and Vertinsky (1991: 3-6)

Environmental disputes usually arise from a perceived unfairness of decisions. In turn, disputes negatively affect effectiveness and efficiency in the course of making and

implementing decisions. Several of the elements in table 2.1 can be considered in terms of their potential to address the sources of environmental disputes (table 2.2).

Table 2.2: Elements of decision making that can function to address sources of environmental disputes

	Sources of environmental disputes		
	Value and interest differences	Uneven distribution of benefits and costs	Information limitations
Elements of decision making	1. Structured in legislation 3. Public participation 7. Impartial, accountable decision makers 9. Appeal process 10. Mediation and negotiation	6. Equitable outcome through compensation 7. Impartial decision makers 8. Monitoring of implementation 9. Appeal process 10. Mediation and negotiation	2. Sound information 7. Expert decision makers

Different societal values and interests are included indirectly in decision making by ensuring the process is formalized in legislation, legislation which in turn is approved by representatives elected by society. Public participation includes diverse values in a more direct way. Decision makers that are impartial and accountable, appeal mechanisms and arrangements for mediation and negotiation work to ensure fairness and effectiveness of decisions. In doing so, they address two sources of environmental conflict: value differences and uneven distribution of benefits and costs. Unequal benefits and costs can also be dealt with more directly by mechanisms of compensation, together with monitoring the actual effects of decisions and presumably rectifying errors. Support for sound information and for decision makers with expertise to understand issues of information quality, risk, and uncertainty is essential to operate with information limitations.

The incidence of environmental disputes can be attributed partly to current decision-making processes lacking some of the desirable elements in table 2.1. On the other hand, the model assumes decisions are reached after a rational analysis, which is often not the case in the public sector, where politics play a large role in how decisions are made. In

fact, Amy (1990) suggested that the adoption of particular methods for decision making in the public sector is often a response to political interests rather than a product of an intellectual search for the most rational technique. Since political power is not level between different segments of society, decisions will be perceived as unfair by some sections, giving origin to environmental disputes. In effect, irresponsible decisions are more often due to pressure on governments to support economic growth and development than to a lack of adequate impact information (Amy 1990). Amy noted that rational analysis such as those used in environmental impact assessment (EIA) and cost-benefit analysis (CBA) are used as technocratic forms of legitimizing decisions in the public sector. Alternative decision-making techniques that involve some sort of face-to-face collaboration or negotiation could be misused as just a novel way to legitimize decisions, relying on claims of neutrality and democracy instead of on claims of scientific or economic rationality (ibid.). These types of decision-making techniques have nevertheless proliferated in the environmental arena since the early 1970's (Crowfoot and Wondelleck 1990, 17; Rabe 1988).

Collaborative approaches: merits and limitations

Decision-making processes may include different levels and methods of public participation. "The public" is not a single group, but consists of unaffiliated individuals, people organized into special interest organizations, and elected and appointed officials at all levels of government (Cuthbertson 1983). Sometimes the plural "publics" is used, to indicate a multiplicity of interests and groups. A definition of "a public" or a stakeholder would be "any person, persons or group of people that have a distinctive interest or stake in an issue" (Praxis 1988). Collaboration occurs when parties who see different aspects of a problem agree to explore their differences and search for solutions that go beyond their own limited vision of what is possible (Grey 1991).

Collaborative approaches to decision making entail two-way communication. Face-to-face dialogue, negotiation, consensus-building, or shared decision making may be used to reach a solution acceptable to all stakeholders. In collaborative processes, stakeholders

are involved from the early stages of a decision-making process. Traditional mechanisms to involve stakeholders, such as public hearings, occur at later stages in the process, being more symbolic than effective (Amy 1990) (King, Feltey, and O'Neill 1998). Lobbying of administrative agencies used to be the only method of participating early in decision making (ibid.). Unfortunately, as Smith (1982) expressed it, "lobbying represents the nemesis of true public involvement and is an inherently biased and elite means of exerting influence on policy issues."

Collaborative processes possess a series of advantages over decision techniques that are less inclusive of affected stakeholders. First, they offer direct communication, which provides opportunities for joint fact-finding by affected groups, allowing issues to be raised early and providing parties with equal information (Gray 1989; Wondelleck 1988, 186). They provide for a broad range of represented interests, hence having a greater potential of achieving consensus on a definition of the public good (Gray 1989). Finally, participants feel they own the agreements reached and are thus committed to their implementation (ibid.). Overall, a favorable climate of trust and understanding towards the process and other participants develops (Gray 1989; Wondelleck 1988, 186).

The value of collaborative processes resides on their neutrality and fairness. However, this value cannot be realized if unequal resources among participating stakeholders either limit who can take part in the process or put at a disadvantage those groups with less resources (Amy 1990). If this is the case, a collaborative process may just legitimize decisions while reproducing the power inequalities already existing in the outside political world (ibid.). This problem can be at least partially remedied with provisions for funding of groups with financial constraints. Because collaborative processes are sensitive to abuses of power, it is important that participants support the process and thus participate in good faith. The main limitation of collaborative processes is the fact that conflict over fundamental values cannot be ended (Wondelleck 1990, 18). Because environmental disputes assume no "right" or "wrong" sides, for example something like

polluting, which some view as essentially wrong, becomes an equally valid interest (Amy 1990). In an environmental dispute, stakeholders must be cautious of solutions that offer a “middle ground” compromise of basic values. Certain “easy” issues will have a solution that is agreeable to all parties, when values and goals are agreed on, and a dispute centers around how to achieve them (Amy 1987, 201). However, there will be “hard” issues with no apparent solution, when basic values are in dispute.

Alternative approaches to decision making that provide for direct stakeholder involvement and collaboration are not a panacea for environmental disputes. However, acknowledging their limitations, they offer a technique for decision making that may address the sources of environmental disputes where more traditional processes based mainly on rational analysis have failed. Through dialogue, they have the potential to produce decisions that are more fair, including different values and interests present in society and providing compensation for those who bear most costs, while at the same time ensuring information is shared. As a decision-making technique, they tend to favor fairness over efficiency yet provide decisions that can be effectively implemented.

Stakeholder participation in practice

The degree of stakeholder involvement in collaborative processes may range from consultation to negotiation as the influence, expectations, and commitment of stakeholders to decisions increase (CORE 1995, 32). In a democracy, participation is voluntary, and as such it should not be expected to be representative of every segment of the general public (Cuthbertson 1983). For this reason, and to ensure that accountability for decisions rests with elected officials, public participation that informs decisions but does not dictate them is preferable (ibid.).

Public meetings, open houses, workshops, public advisory groups, joint planning teams, and co-management teams are possible concrete mechanisms of public participation in the decision-making process (CORE 1995, 32; Pinkerton, 1994). Smith (1982) recommended public advisory bodies complemented by public discussion papers as an

effective way of achieving comprehensiveness in participation (Brenneis and M'Gonigle 1992). Long-term public advisory bodies are better able to address evolving issues than methods that operate on an *ad hoc* basis (Smith 1982). They are considered to be the most intensive form of public participation short of delegated authority (Parker 1996). As an on-going vehicle for dialogue, public advisory bodies can provide substantial opportunities for stakeholder input in a proactive and consensual style (Smith 1982). They can be complemented by less intensive methods that offer an opportunity for involvement to a broader range of interested citizens, either on an *ad hoc* or a continuous basis (ibid.). The final selection of a method, or a combination of methods, to involve stakeholders should be based on the characteristics of each particular situation, based on considerations of fairness, effectiveness, and efficiency.

Evaluation framework

The purpose of research controls decisions about design, measurement, analysis, and reporting (Patton 1990, 150). Studies may fall anywhere along a continuum ranging from basic research to action-oriented research, according to purpose distinctions (table 2.3). There are no clear lines dividing the different types of research along the continuum (Patton 1990, 159). The purposes of this study spread over a wide portion of the continuum. This study evaluates a case of stakeholder involvement with a specific purpose of providing an overall judgment about its effectiveness. At the same time, this study has a broader purpose of generating potential solutions to the issue of how to improve decision making through stakeholder involvement. The focus is on how the administrative system can improve its decisions by way of institutional arrangements that promote collaboration among stakeholders. The next chapter describes the details of the case study. As mentioned in the introduction, it consists of a stakeholder group that advises the implementation and monitoring of a project. The group forms part of a complex institutional arrangement including other advisory groups which focus on specific aspects of project implementation. Memberships of advisory groups overlap and groups do not all have the same convenor.

The purposes of this study confine research findings to a specific time, place, and conditions, and as such the generalizations sought are limited (Patton 1990, 154-156). Evaluation can be viewed as a process where something being evaluated is judged against certain criteria to produce an informed opinion (Duffy et al. 1998). The criteria set used are developed according to the purposes of the research. In this case study, evaluative criteria are assessed by means of performance indicators. The information to satisfy indicators is obtained from case documentation and from participants. The indicators draw on participants' perspectives to explore the role of the administration.

Table 2.3: A typology of research purposes

Research type	Purpose	Level of generalization
Basic research	Contribute to fundamental knowledge and theory	Across time and space
Applied research	Illuminate a societal concern	Limited context
Summative evaluation	Determine program effectiveness	Limited to similar programs
Formative evaluation	Improve a program	Limited to specific setting
Action research	Solve a specific problem	Here and now

Source: Adapted from Patton (1990, 150)

Evaluation can be based on outcome or on process. In general, evaluation of outcomes measures the extent to which objectives are achieved (Sewell and Phillips 1979). Process evaluations are aimed at understanding the internal dynamics of how a program operates (Patton 1990, 95-96). Process and outcome are interrelated, since the characteristics of a process will influence its outcome, and the intended outcome will play a role in crafting the process. It is helpful to evaluate both simultaneously, given that outcome evaluation provides information on whether a given initiative worked, while process evaluation serves to explain why it did or did not work, and helps to infer what may have worked.

Process evaluation

Evaluating process is particularly useful when a program is being considered as a model worthy of replication (Patton 1990, 95-96). By describing and understanding program processes, it is possible to isolate elements that contribute to program successes and failures (ibid.). The data obtained permit judgments about the extent to which a program is operating the way it is supposed to, revealing areas that can be improved and highlighting strengths that should be preserved (ibid.).

Process evaluation can be approached as a comparison of the design and actual functioning of a process against a number of desired elements in an ideal situation. Generally, the same aspects of a public involvement process that can make it susceptible to failure can also be used as indicators of its success. Studying the measurement of success in public participation efforts by the US Department of Energy, Carnes et al. (1998) developed attributes of success and associated performance indicators through a review of the literature and consultation with stakeholders. Their results suggest attributes which are mainly based on outcomes of the public participation endeavor, except for one process-based attribute, which is full and active stakeholder representation (Carnes et al. 1998). The literature offers several examples of evaluations of participatory decision-making processes in the area of regional and subregional land use planning in BC (Duffy et al. 1998; Penrose 1996; Tamblyn 1996; Wilson 1995). The criteria used in these evaluations concern issues of participant involvement, such as representation, resources, and support for the process, as well as issues of process design and mechanics (Duffy et al. 1998). They originate in a standard framework developed by Wilson (1995) which was based upon experience with shared decision making described in the literature.

A standard criteria template has the advantage of permitting use as a measure of success with one process or as a comparative measure between different processes (Wilson 1995, 25). Such an evaluation framework would be suited to the purpose and desired level of generalization of applied research (table 2.3). However, there are advantages to customizing an evaluation to a particular case study. This alternative approach would be

closer to a summative or even a formative evaluation (table 2.3). While the level of generalization of conclusions diminishes, it allows deeper understanding of the unique dynamics of a specific process. An inductive approach permits issues to emerge from the case study data rather than from the theories and expectations of the researcher (Patton 1990, 96). Instead of generalizations, the conclusions consist of extrapolations, which are modest speculations on the likely applicability of findings to other situations under similar, but not identical, conditions (Patton 1990, 489). Syme and Sadler (1994) favor this second type of approach, promoting evaluation procedures that are incorporated into the public involvement process. In their evaluation of public involvement in water resources planning, criteria were chosen in partnership with those involved in the process (Syme and Sadler 1994).

Because the purposes of this study are two-fold, to provide an overall judgement about the effectiveness of a specific program while using the case study to extract general issues and recommendations, the evaluation framework used is a balance between the two approaches described above. Process evaluative criteria were chosen with the aim of explaining how outcomes develop. The process evaluation framework is largely based on criteria used in the cited studies of participatory land use planning in BC. Upon initial examination of the case study documentation, the framework was adapted to suit the particular characteristics of the case. Criteria are grouped into two categories: concerning the structure or initial design of the process, and concerning the functioning or operation, the actual activities that take place in the process (table 2.4). Listed under each broad criterion in table 2.4 is its description and several indicators which help assess it in terms of concrete actions.

Table 2.4: Framework of process evaluation criteria and their indicators for a public advisory group on project implementation and monitoring

Process structure	
1. Clear terms of reference	
Description	Indicators

The terms of reference are clear and agreed on by all participants to secure their support for the process and its outcomes. Terms of reference define the authority and responsibilities of the group. Responsibilities include a mandate, concrete activities, and procedures.	▪ Process of establishment of terms of reference ▪ Clearly defined group authority and responsibilities ▪ Member agreement with terms of reference
2. Effective relations with other advisory groups in project	
Description	Indicators
The responsibilities of different advisory groups as defined in their terms of reference are distinct. Different groups are aware of other groups' responsibilities, communicate and cooperate.	▪ Group has distinct responsibilities from those of other groups ▪ Communication and cooperation between different groups
3. Inclusive and effective representation	
Description	Indicators
All affected and interested parties are invited to participate. The number of participants is manageable. Representatives participate in good faith and communicate with their constituencies. As a group, they communicate with the broader public and those outside the process.	▪ Process of identification and recruitment of members ▪ Range of stakeholders represented ▪ Communication of members with their constituencies ▪ Communication with broader public and interests not represented, if any
4. Opportunities for interaction among members	
Description	Indicators
Continuous meetings offer an opportunity for members to interact and build trust. Meeting arrangements (frequency, length, scheduling) are suitable to participants. Members participate actively in process, attending meetings and communicating between meetings if necessary.	▪ Meeting attendance ▪ Effect of missing members ▪ Effect of member turnover ▪ Meeting frequency ▪ Meeting length ▪ Communication between meetings ▪ Scheduling of meetings
5. Flexibility	
Description	Indicators
The structure and functioning of the process is flexible to adapt to circumstances as needed. Participants are involved in tailoring the process. Mechanisms for process assessment exist to allow participants to provide feedback and facilitate changes.	▪ Mechanisms of process assessment ▪ Flexibility of group organization and operation

Table 2.4 (continued)

Process function	
1. Effective monitoring	
Description	Indicators
All participants are aware of the implementation responsibilities of different agencies. There is adequate group discussion of environmental concerns and of implementation activities. All participants understand the scientific and engineering bases of implementation plans and recommendations. All participants are aware of upcoming decisions and opportunities for contribution. Overall, the implementation and monitoring process is transparent to the participants and the broader public.	▪ Participant awareness of implementation responsibilities assigned to agencies ▪ Participants of agencies involved in implementation discuss and explain biophysical concerns, implementation actions, and upcoming decisions and opportunities for contribution ▪ Overall transparency of implementation process
2. Opportunities for contribution	
Description	Indicators
All participants have an adequate opportunity to contribute to recommendations of an advisory nature regarding project implementation and its monitoring. Authorities in charge of implementation activities consider and make use of recommendations, and provide feedback on how they are used.	▪ Advisory nature of recommendations ▪ Opportunity of participants to contribute to recommendations ▪ Level of consideration and use of group recommendations by implementation authorities ▪ Level of feedback on use of recommendations by implementation authorities
3. Efficacy	
Description	Indicators
The group considers all issues that are significant (based on the terms of reference and according to participants).	▪ Group considers all significant issues

Source: Criteria 1, 3 and 5 under process structure are adapted from Duffy et al. 1998. Other criteria are derived from information on the case study.

Outcome evaluation

The premise made through the literature review at the beginning of this chapter is that public involvement leads to decisions that are better in terms of fairness. Consequently, they are more effectively implemented and, in the long term, more efficient. When evaluating public participation in decisions that affect the environment, outcomes can be grouped into effects on participants, as individuals but also as institutions, and effects on the biophysical environment. Stakeholders are affected directly via the actual activities that form part of the public involvement process. However, the ultimate goal of public involvement is better decisions. If those decisions concern the environment, a more subtle and intangible outcome would be the long-term effects of improved decisions on the biophysical environment.

In general, evaluation of outcome measures the extent to which objectives are achieved. Presumably, the stated objectives of a public participation program will be related to the possible effects mentioned. The outcomes above could be evaluated against criteria that relate exclusively to the explicitly stated objectives of a program, or against broader criteria that relate to expected outcomes of a generic public participation program, depending on the purpose of the evaluation. The previous section described how the process evaluation framework was customized to the case study to a certain extent. The template of criteria for outcome evaluation is more comprehensive than if it related exclusively to the process objectives stated in the documentation from the case study (table 2.5).

The criteria listed in table 2.5 are broad but their indicators are tailored to the case study. Outcomes, just as process was, are evaluated based on the perspectives of the participants. Effects on the physical environment could alternatively be evaluated directly through monitoring of physical indicators. However, in both cases the information is less than perfect. In the first situation, because effects on the environment are realized over

long time spans, making it difficult to assess its future state (Yaffee 1996). In the second case, because the participants' values will influence their perspectives.

Table 2.5: Framework of outcome evaluation criteria and their indicators for a public advisory group on project implementation and monitoring

1. Positive effects on participants	
Description	Indicators
Process results in improved communication, understanding, and trust among stakeholders. Participants have a favorable attitude towards collaborative process.	▪ Group serves to foster communication and cooperation among stakeholder groups ▪ Participant satisfaction ▪ Probability of future involvement of participants
2. Positive effects on the biophysical environment	
Description	Indicators
Decisions made during public involvement process lead to improved environmental protection in the course of project implementation.	▪ adequacy of environmental protection during project implementation ▪ problems which emerged, if any, related to environmental protection ▪ influence of the group on environmental performance ▪ link between environmental performance and a group's structure or function
3. Successful overall outcome	
Description	Indicators
Collaborative process is effective and adequate for the task of project implementation and monitoring. Process contributes to regional sustainability.	▪ recommendations for a group process in a similar scale of project in the future ▪ overall effectiveness of group to oversee project implementation ▪ link between group involvement in project implementation and regional sustainability and development

Chapter 3

CASE STUDY

This chapter provides the background and conditions that form the setting for the process of stakeholder involvement under study. The information comes from relevant documents and from respondents' answers. The first section relates the history of events that lead to the establishment of the Environmental Monitoring and Implementation Committee (EMIC) at Vancouver International Airport. Next, the regulatory structure that applies to Sea Island, the site of Vancouver International Airport, is explained. Finally, the last section describes the set up of the committee, including terms of reference and participants.

Parallel Runway Project Background

Vancouver International Airport (YVR) is located on Sea Island, in the Fraser River Estuary, British Columbia. The airport is a Pacific gateway to North America and the Pacific Rim, providing international, national, and local air services for passengers and cargo. Sea Island and the airport are part of a rich natural environment (Vancouver International Airport Authority (VIAA) 1994a, 3). The Fraser River estuary supports the largest population of wintering waterfowl in Canada, and represents the most important stopping point for migrating birds on the Pacific Flyway (National Wetlands Working Group (NWWG) 1988, 393). The estuary also supports five species of Pacific salmon and one of the largest salmon runs in the world. Land elevations on Sea Island range from -0.7 to -1.4 meters in most areas, below the high tide level of the Fraser River. The airport is located within a diked area of approximately 1,475 hectares (VIAA 1994a, 3).

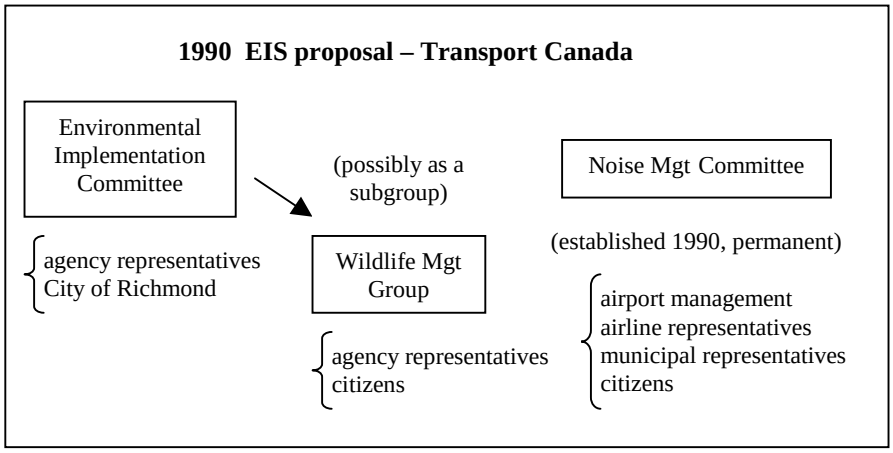
Plans for a new parallel runway at YVR had been considered since the 1940's. In 1972 Transport Canada expropriated much of the property on Sea Island north of the airport as a step toward construction of a parallel runway. An Airport Planning Committee composed of federal, provincial, regional, municipal, and community representatives was

formed in 1973 as a result of public opposition to the expropriations and general concern about airport expansion (Canada 1990, 11). The committee examined different runway concepts and did not reach consensus in its final report in 1976 (Canada 1983, 3). Following release of this report, Transport Canada proposed a new option for the parallel runway that was contained entirely within the dikes (Canada 1990, 11). The project was referred to a federal Environmental Assessment Panel and later postponed on two occasions, until revisited in 1989 (ibid.). In 1989, an independent panel (hereafter the panel) conducted a public review of the project under the federal Environmental Assessment and Review Process (EARP) (ibid.). The review assessed the environmental and socio-economic effects associated with the project. As part of this process, the project proponent, Transport Canada, prepared an Environmental Impact Statement (EIS) for the Parallel Runway Project (ibid., 119).

The guidelines issued by the panel for the EIS asked it to make use of previous studies, focus mainly on outstanding issues, and respond to public concerns as expressed in earlier studies and public review (Canada 1983, 7). The EIS was to include a description of the project setting, project justification and description, issues of concern, and proposals for mitigation, compensation, and monitoring (ibid.). The EIS proposed several committees as part of its impact mitigation and monitoring program (fig. 3.1). An Environmental Implementation Committee would oversee and advise on the delivery of environmental management recommendations in the EIS and of the EARP Panel. Transport Canada proposed as members itself, Environment Canada, the Department of Fisheries and Oceans (DFO), the provincial Ministry of Environment, and the Municipality of Richmond (Canada 1990, 13-3). A permanent Noise Management Committee chaired by Transport Canada (Canada 1991, 72) was established as early as January 1990 (Canada 1990, 13-5) to identify issues and develop noise abatement programs (ibid., 12-1). Finally, a Wildlife Management Group of agency representatives and citizens was to be established to provide guidelines and monitor ongoing habitat management on Transport Canada land on Sea Island (ibid., 12-1, 13-6). The EIS proposed this group as a possible

subgroup of the Environmental Implementation Committee. The role and functioning of the group was to be developed in ongoing consultation with wildlife management agencies and the public (ibid., 8-33).

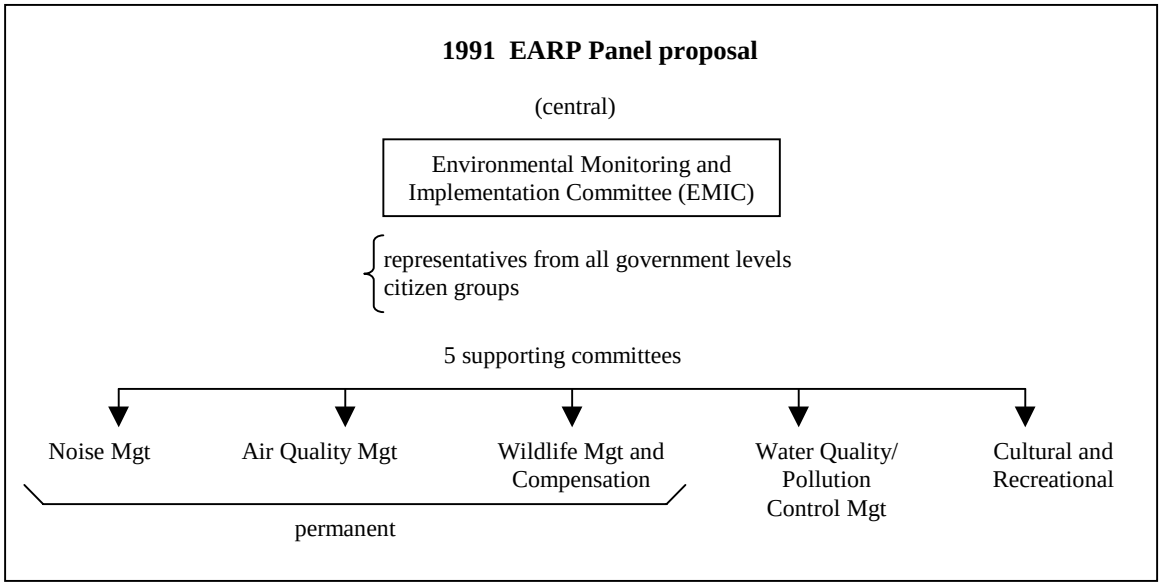
Figure 3.1: Institutional arrangements for environmental monitoring of the Parallel Runway Project proposed by Transport Canada in its Environmental Impact Statement (EIS)



Following completion of the project review, the panel issued a report concluding that a new runway at YVR should only be approved subject to a series of recommendations (Canada 1991, 7). The report described an integrated project monitoring and implementation program proposed by Transport Canada consisting of a central Environmental Monitoring and Implementation Committee (EMIC) and five supporting committees, of which three (noise, air quality, wildlife) would be ongoing (fig. 3.2) (ibid., 104). The panel recommended the expansion of EMIC's membership to include the City of Vancouver, the Greater Vancouver Regional District, the Musqueam Band, and citizen groups in addition to members proposed in the EIS (ibid.). As well, the report recommended the strengthening of the Noise and Wildlife Committees (ibid.). In particular, the panel advocated that Transport Canada establish a Wildlife Management Committee chaired by the Canadian Wildlife Service of Environment Canada (CWS) with a mandate to manage an area north of the runway set side as the core of a Sea Island Conservation Area (SICA) (ibid., 99).

On June of 1992, the Transport Minister, Jean Corbeil, announced federal government approval to proceed with the Parallel Runway Project at Vancouver International Airport. The government responded to the recommendations of the Environmental Assessment Panel. The recommendations accepted by the minister assigned responsibilities related to project implementation to the Airport Authority and federal agencies. About 140 hectares of land north of the runway was to be transferred to Environment Canada (CWS) to be managed as Sea Island Conservation Area (SICA) with the advice of a committee chaired by Environment Canada, and to be protected in perpetuity. According to the minister's Response, CWS, as the federal agency mandated to manage wildlife habitat on federal Crown lands would be the most efficient and practical lead agency to accomplish this task (Canada 1992).

Figure 3.2: Institutional arrangements proposed by the EARP Panel for environmental monitoring of the Parallel Runway Project



The Vancouver International Airport Authority (VIAA) assumed management of Vancouver International Airport from Transport Canada on 1 July 1992 (VIAA 1998, 5). It established the Environmental Monitoring and Implementation Committee (EMIC) in 1992 to monitor its environmental management program for the Parallel Runway Project

(VIAA 1993) (table 3.1). The new parallel runway at YVR opened in November 1996, after four years of construction (VIAA 1996). EMIC was terminated the following year and replaced by a new committee, the Environmental Advisory Committee (EAC), with a broader mandate to address ongoing environmental issues at the airport (VIAA 1997).

Table 3.1: Institutional arrangements for environmental monitoring at YVR during and after the implementation of the Parallel Runway Project

	Public advisory committees			**Interagency committee**
	Noise Management Committee	Environmental Monitoring and Implementation Committee (EMIC)	Wildlife Habitat Advisory Committee on Compensation (WHACC)	Inter-agency Steering Committee
Chair	VIAA	VIAA	CWS	Transport Canada
Members	• airport management • airline sector • federal, Musqueam, and municipal organizations • citizens	• airport management • federal, Musqueam, provincial, regional, and municipal organizations • citizen groups	• airport management • federal, Musqueam, provincial, and municipal organizations • citizen groups	• VIAA • Transport Canada • Environment Canada
Term	1990-permanent	1992-96 replaced by Environmental Advisory Committee (EAC)	1992-permanent	1993-96 replaced by Sea Island Conservation Area Steering Committee and Working Group

Regulatory setting

Vancouver International Airport is on federal land and, therefore, federal standards are used as the basis for environmental programs and performance (VIAA 1998, 8). Federal departments concerned with environmental regulation applicable to this study are the Department of Fisheries and Oceans, Environment Canada, and Transport Canada. The Department of Fisheries and Oceans is responsible for migratory fish, while the provincial Ministry of Environment is concerned with nonmigratory species. The

management of migratory birds is under the jurisdiction of CWS. The provincial Ministry of the Environment is concerned with nonmigratory species and other wildlife (Canada 1991, 96). The Environmental Protection Service of Environment Canada is in charge of pollutants such as solid wastes, sewage and air quality (respondent[1]). There are also various interagency coordinating bodies such as the Fraser River Estuary Management Program with an interest in the effect of airport activities on the environment (ibid.).

In responding to the EARP Panel recommendations, Transport Canada assumed obligations relating to its airport operator role, and to its aviation responsibilities. Upon transfer of the management of YVR to a Local Airport Authority, Transport Canada's airport operator commitments with respect to EARP were to be honoured by the Airport Authority (Canada 1992). Certain functions are still assumed by the federal government, including air navigation and security facilities, regulatory authority, and enforcement powers with respects to standards of safety, security, and protective policing (Canada 1991, 105).

Sea Island lies within the boundaries of the City of Richmond. The City of Richmond and Vancouver International Airport Authority cooperate on a number of issues under the Richmond Accord (Murray 2000a). In general, the airport authority is responsible for the land leased from the federal government, and the City of Richmond is responsible for parcels not in federal land. Since YVR is on federal land, it is not subject to the city's jurisdiction regarding zoning, taxation, and payment for services (Canada 1991, 106).

Vancouver International Airport Authority

The minister of consumer and corporate affairs established the Vancouver International Airport Authority by letters patent dated January 23, 1990 (Canada 1991, 103). It assumed management of the airport in July 1992. This was part of the government of Canada's strategy to transfer the operation of airports to local authorities (VIAA 1998, 5).

[1] Information obtained during the research interviews is referenced as "respondent" in order to protect the confidentiality of the interviewees.

A memorandum of understanding and associated supplementary principles guided the establishment of the airport authority in the early stages, though they have no legal force (Canada 1991, 103). The airport authority is a not-for-profit corporation established under Part II of the *Canada Corporations Act*. It has no shareholders and receives no government funds, guarantees, or subsidies. Profits are reinvested into airport development. The Airport Authority is headed by a Board of Directors composed of members nominated by eight nominating entities. These are the Association of Professional Engineers and Geoscientists of British Columbia, City of Richmond, City of Vancouver, Government of Canada, Greater Vancouver Regional District, the Institute of Chartered Accountants of BC, the Law Society of BC, and the Vancouver Board of Trade (VIAA 1997; Murray 2000b). Further members can be appointed by the first eight; the Board of Directors usually has around thirteen members (Canada 1991, 103; Murray 2000b).

Public accountability of the airport authority is through a yearly public meeting at which the authority should allow opportunity for asking questions and expressing views (Canada 1991, 103). The authority has committed to meet or exceed self-imposed standards for environmental programs and performance in addition to their legal requirement to meet federal standards. This includes the adoption of provincial, regional, and municipal regulations and bylaws considered to be applicable by the authority as internal objectives. The airport authority also requires Sea Island tenants to meet these internal objectives (VIAA 1998, 8).

Description of process

The Environmental Monitoring and Implementation Committee (EMIC) first met in September of 1992. Its terms of reference stated EMIC's purpose was "To provide a forum for the public review and assessment of the Vancouver International Airport Authority's Environmental Management Program for the Parallel Runway Project." (VIAA 1994b, 1). EMIC's responsibilities were:

> (1) To provide a review and assessment of the design and implementation of the Airport Authority's Environmental Program for the Parallel Runway Project.
> (2) To monitor the Airport Authority's implementation of the applicable EARP Panel recommendations, as accepted by the Minister of Transport, and to provide a forum for government agencies to report on implementation activities.
> (3) To provide an Annual Report for public review (VIAA 1994b, 1).

The mentioned Environmental Program was developed in 1992 after the airport was transferred to the authority. It was approved by its Board of Directors in January 1993, and implemented immediately thereafter (VIAA 1994a). The program consisted of environment-related activities based on the EARP panel recommendations as accepted by the Minister of Transport, together with further commitments made by Transport Canada in the EIS, and additional actions deemed necessary by the authority throughout the project (Murray 1999).

The mandate of EMIC included monitoring the implementation of the subset of EARP panel recommendations accepted by the Minister of Transport that fell under the responsibility of the airport authority. This mandate entailed two-way communication between the airport authority, who would report to EMIC on its activities, and EMIC, who would review and monitor the authority's activities related to the project. Another subset of EARP panel recommendations as accepted by the Minister of Transport fell under the responsibility of three federal agencies: CWS, DFO, and Transport Canada. While these agencies were to report to EMIC on their implementation activities, it was not within EMIC's mandate to monitor their activities. Hence, EMIC's mandate entailed only one-way communication from the federal agencies to the committee.

The terms of reference for EMIC defined the environment broadly to include archaeological and heritage issues (EMIC minutes, 8 September 1992). The committee's annual report was to cover environmental activities associated with the runway project and could also include other airport environmental programs (ibid.). EMIC's report was to be separate from the airport authority's annual financial report (ibid.). According to the initial terms of reference, meetings were to be held semiannually, or at the call of the

chairperson (ibid.). However, meetings were held quarterly (EMIC minutes). These terms of reference were drafted by airport authority staff based on recommendations in the EIS and EARP Panel report, then reviewed and approved by EMIC (respondent).

EMIC membership consisted of representatives from a variety of agencies and groups. These included: Vancouver International Airport Authority (chairperson, safety officer, secretariat), City of Vancouver, City of Richmond, Greater Vancouver Regional District, Musqueam Indian Band, Fraser River Coalition, Vancouver Natural History Society, Vancouver citizen representative, Richmond citizen representative, Department of Fisheries and Oceans, Environment Canada, Environment Canada (Canadian Wildlife Service), BC Ministry of Environment, Airline Operators Committee, and Transport Canada (as an observer) (VIAA 1993, 1). Guests from the participant government agencies or staff from the airport authority involved in the project also often attended meetings (EMIC minutes).

The airport authority and three federal agencies, CWS, DFO, and Transport Canada, had implementation responsibilities in the Parallel Runway Project (Canada 1992). Representatives from local, regional, provincial, and First Nations governments, and citizen groups participated as stakeholders in the project. Stakeholder groups were identified and asked to forward their own representatives (respondent). The make up of the committee reflected the mixture of stakeholders that was proposed in the EIS and expanded by the EARP Panel report, except for citizen groups, which were not specified in these documents. Two citizen groups with an environmental focus participated, the Vancouver Natural History Society (VNHS) and the Fraser River Coalition, as well as citizen representatives from the cities of Vancouver and Richmond. Transport Canada had identified the Vancouver Natural History Society (VNHS) and other public groups as active participants in decision-making processes concerning wildlife and wildlife habitat in the Fraser delta in the EIS and had proposed the VNHS participate in the wildlife working group (Canada 1990, 8-33). The Fraser River Coalition, representing a number

of environmental groups, asked to participate in EMIC and was accepted (respondent). Some of the citizen representatives had been actively involved in the airport expansion for many years (respondent).

EMIC was chaired by the airport authority. The committee met quarterly between September 1992 and December 1996, and produced four annual reports (EMIC minutes). Some of the issues surrounding implementation of the Parallel Runway Project were noise, birds and their habitat, fish and their habitat, water quality, air quality, and archaeological heritage. Two other committees were created, or strengthened, following recommendations of the EIS and EARP Panel report, and still exist (table 3.1). The Aeronautical Noise Management Committee, initiated by Transport Canada in 1990, is now chaired by the airport authority (Canada 1990, 13-5). A Wildlife Habitat Advisory Committee on Compensation (WHACC), chaired by CWS, met for the first time in January 1993. WHACC's mandate is to advise CWS on the parallel runway wildlife habitat compensation program and the management of Sea Island Conservation Area (WHACC minutes, 21 January 1993). In addition, an Inter-agency Steering Committee (IASC) created by Transport Canada coordinated the delivery of federal responsibilities proceeding from the EARP panel recommendations. It was chaired by Transport Canada and included members from the Airport Authority, the Department of Fisheries and Oceans, and Environment Canada. It was replaced in 1996 by a Steering Committee which focuses its attention on the management of SICA (Canada 1996, 3, 9).

Chapter 4

EVALUATION RESULTS

Results are reported in a qualitative format. A quantitative summary of closed questions supplements this information. The questions as presented to the respondents, together with responses to closed questions, are provided in Appendix 1. This chapter begins with a description of the respondents that participated in this study. Next, the results of the process evaluation and of the outcome evaluation are presented by criteria (see Tables 2.4 and 2.5). The results are based on data from the interviews complemented by data resulting from the examination of process documents such as EMIC's annual reports and minutes of meetings. Based on the results, brief conclusions are drawn for each criterion.

About the Respondents

Fifteen respondents answered the questionnaire, while an additional three chose to answer some questions informally or provide their own comments on the process. When quantitative information is provided, it refers to the respondents who formally answered the questionnaire. Qualitative information refers to all respondents. Five of the total eighteen respondents represented citizen groups. Four represented local, regional, and First Nations government bodies. The remaining nine respondents were representatives of federal departments or the airport authority.

Respondents from different levels of government and the airport authority became members of the Environmental Implementation and Monitoring Committee (EMIC) as a result of the job they held within their organisations. Citizen respondents became involved either through appointment or as a result of long-term involvement with airport expansion. Though not asked specifically about it, three respondents mentioned having been involved in airport expansion since the 1970's, while another two mentioned having been involved in the EARP process. Eight of fifteen respondents that answered the questionnaire were, or are, members of at least one of the other two advisory committees

established as a result of airport expansion and that coexisted with EMIC, the Aeronautical Noise Management Committee and the Wildlife Habitat Advisory Committee on Compensation (WHACC).

Process Evaluation

Process structure

Clear Terms of Reference

The terms of reference are clear and agreed on by all participants to secure their support for the process and its outcomes. The terms of reference define the authority and responsibilities of the group. Responsibilities include a mandate, concrete activities, and procedures.

EMIC's terms of reference defined quite clearly the boundaries of the substantive issues the group was to deal with: the Airport Authority's Environmental Program for the Parallel Runway Project. Respondents related correctly this environmental program to the recommendations of the EARP Panel and to the general environmental issues the recommendations dealt with. No specific document outlined this program, which was broader than just the EARP Panel recommendations accepted by the Minister of Transport. There were a range of comments on whether the committee was restricted or not by its terms of reference. One respondent noted that the terms of reference were self-limiting, though the process produced good results. Another mentioned that although they could have been broader, the terms of reference were never a problem. The results suggest there was some flexibility regarding the environmental issues addressed. The fact that there was no actual document of the Environmental Program for the Parallel Runway Project may have helped in this flexibility, since the airport authority added to the program actions that were deemed necessary throughout the project. A respondent observed that the airport authority staff was interested in and considered every concern that participants had.

The terms of reference reveals that they were rather vague with respect to the influence and the mechanics of the group. They did not expressly say whether the group was to provide advice regarding implementation activities, or it was just to receive information. The former would entail dialogue between stakeholders, whereas one-way communication of information is not considered to be meaningful participation. However, most respondents (6/15 or 40% strongly, and 6/15 or 40% mildly) felt that the terms of reference defined clearly the authority and responsibilities of EMIC. Only one respondent (1/15, 7%) disagreed mildly, noting that the wording failed to emphasize the advisory nature of the committee. In general, participants regarded the group as an advisory group, at least as it concerned the implementation responsibilities of the airport authority. Respondents' answers indicate there was more confusion regarding the aspects of project implementation that were under the control of government agencies. The terms of reference stated that these agencies were in the committee only to report on their activities, that is, to provide information but not necessarily to accept input. The confusion may have originated in the idea behind the establishment of EMIC. The committee was conceived to oversee overall project implementation (Canada 1990, 13-3; 1991, 104), not just the portion of implementation activities that fall within the jurisdiction of one organization, even if that organization is the project proponent. The terms of reference did not describe the mechanics of the group. It was not clear whether it would consist of individual members introducing comments or whether an effort would be made to discuss solutions acceptable to all parties.

Most interviewees (6/15 or 40% strongly, and 5/15 or 33% mildly) declared they agreed with the terms of reference of EMIC when the committee was established. However, it will become clear throughout this evaluation that some misunderstandings in this process can be traced back to inappropriate expectations. These in turn could possibly be attributed to a lack of clarity regarding the process. One person noted that some citizen

group representatives seemed to have trouble adhering to the terms of reference, either by choice or by not understanding.

A key consideration with respect to EMIC is that it did not take part in the process of deciding whether the parallel runway project would be approved or not, or what would be the conditions of approval. As a group, EMIC was new to the airport expansion project. Its members addressed a package of implementation issues with which they did not necessarily agree. Notwithstanding their opinion on the project, about half of the respondents (8/15, 54%) answered when asked whether they agreed with the Airport Authority's Environmental Program for the Parallel Runway Project itself, and all of them agreed. The airport authority assumed the responsibilities of Transport Canada just around the time of project approval, so as an organization it was new to the project as well. Among those responsibilities was the establishment of EMIC. One respondent thought that the atmosphere at the beginning of the process, together with the composition of the committee, did not encourage a lot of discussion, noting that the airport authority was obliged to convene the process.

Conclusions: EMIC was not an independent participation process but a piece of a whole, restricted by the context within which it occurred. In this light, the terms of reference defined clearly the boundaries of substantive issues, while being vague with respect to the authority and mechanics of the committee. Being open-ended about procedures allowed flexibility, but only if and when the attitude of participants was supportive of the process. Relaxed procedures may render a process vulnerable to personal agendas, and allow mistaken expectations regarding the committee's influence.

Effective Relations with Other Advisory Groups in Project

The responsibilities of different advisory groups as defined in their terms of reference are distinct. Different groups are aware of other groups' responsibilities, communicate, and cooperate.

As an overall implementation committee, EMIC had an umbrella function, while other committees would deal with specific implementation issues identified as key concerns in the project review. Hence EMIC would oversee a diversity of issues, some of which, namely noise and wildlife habitat, were being addressed in depth by other committees (see table 3.1). Given this setting it becomes important to define the distinct role of each committee with respect to issues that fall within the realm of more than one of them. The majority of respondents (5/15 or 33% strongly, 7/15 or 47% mildly) thought that the responsibilities of EMIC were distinct from those of other environment committees involved in the Parallel Runway Project. One person (1/15, 7%) mildly disagreed, citing the noise management committee under the umbrella of EMIC. An undecided respondent alluded to similar members and agendas tripping over each other. Further comments diverged: some mentioned overlap, given that some of the same people sat in different committees and talked about same issues, while others emphasized that the roles of the committees were quite distinct. Some participants were not clear regarding the role of Environment Canada and WHACC vis-a-vis the role of the airport authority.

Overlap in the issues addressed is expected of an arrangement with one overall and several specific committees. However, the different roles of the committees should be clear to the participants, and channels of communication could facilitate those roles. Less than half of the interviewees (2/15 or 13% strongly, 5/15 or 33% mildly) thought that the environment committees communicated clearly. A few (3/15, 20%) mildly disagreed with this statement, while the rest were undecided or did not answer the question. Annual reports were exchanged, and there were verbal reports from joint members. Some interviewees commented that individual participants cooperated, but not the committees

themselves. However, the general feeling was that there was no need for greater interaction among the different environment committees.

The committees were not set up with the intention that they would cooperate. The fact that WHACC was chaired by a different organization (Environment Canada's Canadian Wildlife Service, CWS), and that the implementation responsibilities of CWS were not included in EMIC's mandate was an impediment to cooperation or even communication between WHACC and EMIC, according to the results. Respondents' comments revealed frustration in the part of some participants about this situation. One person stated that committees did cooperate, but not so government departments.

Conclusions: There were no specific channels of communication between the different committees involved in monitoring the construction of the parallel runway. Participants in general did not feel a need for greater interaction between committees. There was some confusion regarding EMIC's relation to WHACC. The confusion is a result of the complexity of the project and the institutional arrangements for monitoring, in terms of agencies involved and jurisdictions. More extensive clarification at the beginning of the process and ongoing communication could have been of help.

Inclusive and Effective Representation

All affected and interested parties are invited to participate. The number of participants is manageable. Representatives participate in good faith and communicate with their constituencies. As a group, they communicate with the broader public and those outside the process.

The Parallel Runway Project involved a great complexity of stakeholders. There had been numerous environmental studies and extensive public review and controversy since the 1970's. EMIC had representatives from all levels of government, including the different federal departments that were involved in some aspect of project implementation. This was a long list of organizations, though easy to identify. Identifying stakeholders from public groups is usually more difficult. Two of the stakeholders were environmental

groups which had been involved in airport expansion for a long time; one of them, the Fraser River Coalition, was itself an umbrella organization representing a number of groups with environmental interests. The interests of residents of the adjacent cities were represented by private citizens. All respondents (8/15 or 53% strongly, 7/15 or 47% mildly) believed that the range of stakeholders represented in EMIC was adequate. The number of official members was about nineteen, and apparently was a manageable number. One respondent commented that some people from citizen groups would not want to be part of EMIC even if invited. Public groups may prefer not to participate in a committee such as EMIC when they disagree with the project in general.

Representatives of organizations such as the airport authority or government agencies usually report to their parties through formally established mechanisms. Reporting may be harder for citizen groups if they represent a large and diverse constituency. Many (9/15, 60%) respondents were undecided or did not answer when asked whether committee members communicated adequately with the stakeholder groups they represented; respondents were aware of their own situation but could not answer for other members. Several people agreed (2/15 or 13% strongly, 3/15 or 20% mildly), and one mildly disagreed. The main concern mentioned was the difficulty for citizen group members to communicate with their constituencies.

EMIC's annual report was distributed by the airport authority's staff to a mailing list including committee members, libraries, and interested people that had contacted the authority. It was also available at the authority's annual public meeting. Most respondents (7/15 or 47% strongly agreed, 4/15 or 27% mildly agreed) felt that the committee took adequate measures to ensure communication with the broader public and with interests who may not have been represented in the committee. A few (2/15 or 13% strongly, 1/15 or 7% mildly) disagreed with this statement. One person noted that the committee as a group could have made a greater effort, for example by holding public meetings.

For the most part representation was perceived as inclusive and effective, though there was concern over representation in the committee of the interests of the broader public. One respondent noted that representatives from environmental groups had specific concerns and could not be considered to represent the interests of a broad public. These interests were presumably represented by the citizen representatives for the cities. However, a whole city is too large and diverse a group to represent. Advisory groups are a good method of involving stakeholders if clear interest groups can be recognized. A more inclusive and effective representation of the public not affiliated with environmental groups could have been achieved for example by representatives from neighborhood associations from areas close to the airport.

Conclusions: A good cross-section of interests was represented in EMIC, including all levels of government and citizen groups. Given the number of stakeholders only in government, it becomes difficult to include citizen groups and keep the group manageable. The EIS and EARP panel recommendations concentrated mostly on identifying stakeholders in the government side. Citizens' interests were represented by environmental groups as well as citizen representatives from the cities at large. However, representatives of organized interest groups work best in advisory committees, because they can represent defined interests and have less difficulty to report back to their constituency. Broad public participation can be achieved by complementing an advisory committee with other methods of participation. Annual reports are a good start towards communicating with the general public.

Opportunities for Interaction among Members

Continuous meetings offer an opportunity for members to interact and build trust. Meeting arrangements (frequency, length, scheduling) are suitable to participants. Members participate actively in process, attending meetings and communicating between meetings if necessary.

Whenever possible, respondents were selected among process participants that had attended most meetings, so many respondents attended meetings regularly. Most

respondents had alternate representatives. Scheduling and time demands of meetings were cited as the most common reasons for missing meetings. The results indicate that the committee was able to function with missing people. The key players, members from the airport authority, were constant. The committee was chaired well so that missing and new members were not an obstacle.

Respondents' opinions were divided regarding missing and new members. Many (2/15 or 13% strongly, 7/15 or 47% mildly) thought that missing members at meetings did not affect the functioning of the committee. Those who thought there was an effect (1/15 or 7% did so strongly, 5/15 or 33% mildly) pointed out that the absence of some agency representatives posed a problem when certain issues were discussed, particularly regarding wildlife habitat and CWS. Similar division of opinions exists regarding the effect of member turnover. Respondents who thought turnover affected the committee (7/15 or 47% did so, mildly) cited having to revisit old issues. Among those that disagreed there was an effect (2/15 or 13% strongly, 5/15 or 33% mildly), some suggested that certain committee members did not contribute much even when present.

Meetings would often last three hours or longer and sometimes include a tour (EMIC minutes). They were scheduled in the afternoons, though some concern was raised at the beginning of the process regarding the difficulty this would pose for citizen representatives if they work (EMIC minutes, September 8 1992). Respondents believed meetings were held with sufficient frequency (7/15 or 47% strongly agreed, 8/15 0r 53% mildly agreed). One person thought there were not long enough to cover all significant issues, though the majority (8/15 or 53% strongly, 6/15 or 40% mildly) agreed they were. Some commented they were too time consuming. Many respondents reported communicating informally between meetings, in particular with representatives from the airport authority. Respondents' answers suggest the committee worked to allow better communication and to set up relationships between some of its members.

Meetings were scheduled regularly. One person commented that sometimes the airport authority staff would already have taken actions 4-6 weeks before a meeting, though not on essential issues. Respondents were asked whether they thought that meetings were scheduled at appropriate times in order to review and influence the implementation of initiatives related to the Parallel Runway Project. Many (5/15 or 33% strongly, 4/15 or 27% mildly) agreed. A few (3/15, 20%) mildly disagreed, were undecided or did not answer the questions. Their comments raised the issue of EMIC's role. One respondent alleged the terms of reference did not say EMIC was to provide advice. Another interviewee stated that the committee just accepted the information presented.

Conclusions: Regular interaction between members is one of the strengths of advisory committees. EMIC succeeded at establishing a line of communication between the airport authority and participants. Other participants that had implementation responsibilities ignored the opportunity to establish an on-going dialogue and build trust: there were some concerns in this regard around missing members, turnover, passive attitudes, and one-way communication. Meetings were efficient in all regards. Meetings scheduled during the day could have posed a problem for citizen representatives with day jobs.

Flexibility

The structure and functioning of the process is flexible to adapt to circumstances as needed. Participants are involved in tailoring the process. Mechanisms for process assessment exist to allow participants to provide feedback and facilitate changes.

At the end of the process, the airport authority asked participants to evaluate the EARP process in general and EMIC specifically by answering a questionnaire. The input was incorporated into EMIC's final report and sent to the federal ministers of transport and environment, and to the Canadian Environmental Assessment Agency. Aside for this final evaluation, EMIC did not have a formal ongoing mechanism to assess its own progress. However, informally, the airport authority was open to suggestions for change, according to respondents' answers. The chair would sometimes allow the discussion of issues outside of terms of reference to accommodate committee members. Suggestions would be

discussed by the committee and changes would be made or not depending on what was convenient to the majority. Accommodating the majority may not always be enough though. In the issue of meeting scheduling, for example, since more than two thirds of the committee members participated as part of their jobs while representatives from citizen groups participated in their spare time, meetings were held during the day. This could have prevented the attendance of citizen representatives altogether had they held day jobs.

Conclusions: The general feeling among respondents is that the process was flexible, thanks to the chair who was very accommodating. A final assessment was done at the end of process, but there was no formal ongoing mechanism of assessment. Flexibility was informal and dependent on the personal attitudes of the airport authority staff, not built into the process design.

Process function

Effective Monitoring

All participants are aware of the implementation responsibilities of different agencies. There is adequate group discussion of environmental concerns and of implementation activities. All participants understand the scientific and engineering bases of implementation plans and recommendations. All participants are aware of upcoming decisions and opportunities for contribution. Overall, the implementation and monitoring process is transparent to the participants and the broader public.

The implementation of the Parallel Runway Project involved the airport authority and several federal agencies. The airport authority, the Canadian Wildlife Service (CWS), the Department of Fisheries and Oceans (DFO), and Transport Canada were all in charge of some aspect, according to their jurisdictions. The results indicate EMIC participants from government bodies seemed clear about jurisdictions and how responsibilities were allocated. Most respondents (8/15 or 53% strongly agreed, 6/15 or 40% mildly agreed) believed that EMIC members were aware of the responsibilities of the airport authority in the Parallel Runway Project. Fewer respondents (4/15 or 27% strongly, 7/15 or 47%

mildly) agreed when asked about awareness among EMIC members of the responsibilities of other regulatory agencies. Respondents cited occasional confusion about what the airport authority had control of versus what the government agencies had control of. There were further comments on an issue already mentioned: whether people did not understand the different roles of the implementing bodies or they chose to ignore them to focus on the issues of interest to them.

The ability of the committee to monitor project implementation was dependent on the transparency of the authorities with respect to implementation concerns, decisions and actions. Respondents were asked about the conduct of the airport authority, CWS, DFO, and Transport Canada through a series of statements on different aspects of transparency in question 23, then about transparency in general in questions 24 and 25 (table 4.1). The airport authority was rated most favorably in all questions on transparency. The government agencies obtained a lower rating: the majority of respondents agreed with the statements in questions 23 and 24, but a few disagreed. Only one respondent (1/15 or 7%, mildly agreed) thought that the authority should have done things differently to increase the transparency of the implementation process. For the same statement, four respondents agreed (1/15 or 7% strongly, 3/15 or 20% mildly) with respect to CWS, six agreed (2/15 or 13% strongly, 4/15 or 27% mildly) when asked about DFO, and seven agreed (2/15 or 13% strongly, 5/15 or 33% mildly) for Transport Canada. Of the four organizations, Transport Canada obtained the lowest rating regarding transparency, followed closely by DFO and CWS.

Once again an evaluative criterion meets the issue of the role ascribed by the terms of reference to CWS, DFO and Transport Canada of just reporting on their implementation activities. Some of the substantive issues EMIC dealt with were complex enough to involve both the authority and one or more of those agencies. However, EMIC was restricted by its terms of reference to provide input only to the airport authority. Several respondents commented that representatives from implementing agencies adopted a

Table 4.1: Respondents answers to questions 23, 24, and 25, on process transparency (see Appendix 1 for full questionnaire and responses to closed questions).

		SA	MA	U or N/A	MD	SD	Agreement rating
Q23a. Discussed biophysical concerns.	VIAA	9	3	2	1	-	.83
	CWS	9	2	2	1	1	.78
	DFO	7	2	3	2	1	.70
	TC	5	4	3	1	2	.65
Q23b. Discussed proposed implementation actions.	VIAA	11	2	2	-	-	.90
	CWS	4	7	2	1	1	.70
	DFO	6	4	3	1	1	.72
	TC	5	5	3	1	1	.70
Q23c. Explained the scientific and engineering bases for implementation plans and recommendations.	VIAA	10	3	2	-	-	.88
	CWS	6	5	2	-	2	.72
	DFO	4	5	3	1	2	.63
	TC	4	5	3	1	2	.63
Q23d. Kept the committee informed of upcoming implementation decisions and opportunities for contribution.	VIAA	8	3	4	-	-	.82
	CWS	4	4	5	1	1	.65
	DFO	4	2	6	1	2	.58
	TC	4	3	4	2	2	.58
Q24. Overall, the following organizations did a satisfactory job informing relevant stakeholders and interested publics during the implementation process.	VIAA	11	2	1	2	-	.90
	CWS	6	4	2	2	1	.70
	DFO	3	4	4	3	1	.58
	TC	3	5	2	4	1	.58
Q25. The following organizations should have done things differently to increase the transparency of the implementation process.	VIAA	-	1	3	7	4	.27
	CWS	1	3	2	8	1	.42
	DFO	2	4	2	6	1	.50
	TC	2	5	3	5	-	.57

VIAA: Vancouver International Airport Authority; CWS: Canadian Wildlife Service; DFO: Department of Fisheries and Oceans; TC: Transport Canada

SA: strongly agree; MA: mildly agree; U or N/A: undecided, unsure, or not applicable; MD: mildly disagree; SD: strongly disagree. Agreement rating: average of responses, with SA=1.00, MA=.75, U or N/A=.50, MD=.25, and SD=.00.

passive role, not only not seeking input from the committee for their decisions but also not participating much, especially DFO and Transport Canada. Based on the results, the perception of participants was that the three federal agencies were not supportive of the process. They could have taken the opportunity to be open and build trust with other committee members, as the airport authority did, but they ignored it. According to the results, citizen groups distrusted Transport Canada in particular due to their experience through the history of airport expansion.

Several barriers which apply to collaborative processes in general were identified by respondents' comments. First, agencies involved often lack resources and preparation to participate in a collaborative effort such as EMIC. Second are confidentiality concerns around substantive issues, which prevent discussion, and result in decisions becoming known only after they have been settled. Finally, sometimes decision-making power is above the people sitting at the table, and decisions are taken prior to any consultation with stakeholders. In summary, agencies are not set up to include this sort of process in their responsibilities, and just keep on doing their job as usual.

Conclusions: Participants generally understood the roles of the different players in the implementation of the Parallel Runway Project. However, it was unclear to some participants what was included under the jurisdiction of the airport authority and thus was within EMIC's mandate. The airport authority was very transparent with respect to implementation concerns, decisions and actions. CWS, DFO and Transport Canada were not. They just reported on their activities, as per the terms of reference, missing the opportunity to collaborate with other stakeholders. The three agencies were not supportive of the collaborative process, instead they kept doing their job as usual.

Opportunities for Contribution

All participants have an adequate opportunity to contribute to recommendations of an advisory nature regarding project implementation and its monitoring. Authorities in charge of implementation activities consider and make use of recommendations, and provide feedback on how they are used.

The contributions of EMIC to project implementation were advisory. Decision-making power rests with the airport authority and regulatory agencies according to legislation. Most interviewees (9/15 or 60% strongly agreed, 4/15 or 27% mildly agreed) thought that all members had an equal and adequate opportunity to contribute to committee recommendations. One person (1/15, 7%) mildly disagreed, citing a tendency for certain participants to monopolize the agenda. Other comments mentioned that some members did not take up the opportunity to participate in the discussions. This kind of discussion

forum tends to favor a type of people, those who are more outspoken, and thus there is a tendency to have dominant players. Respondents' answers reveal that discussions provided opportunities for information exchange, answering questions, and consensus building.

The majority of respondents (8/15 or 53% strongly agreed, 3/15 or 20% mildly agreed) believed that the airport authority considered and used the recommendations of the committee appropriately (table 4.2). Nobody disagreed. With regards to feedback from the authority on how recommendations were used, most interviewees (8/15 or 53% strongly, 2/15 or 13% mildly) agreed that it was adequate. One person (1/15, 7%) mildly disagreed, claiming no details were offered. Answers were very different concerning the implementation actions of the three federal agencies: several respondents were undecided, did not answered the questions, or thought they were not applicable. The mandate of the committee did not provide for committee input to the federal agencies. Even so, between five and eight respondents (33% to 53%), agreed that committee recommendations were considered, used, and feedback was provided, depending on the agency, with CWS rated as the most open to committee input and Transport Canada the least.

Table 4.2: Respondents answers to questions 29 and 30 on committee contributions (see Appendix 1 for full questionnaire and responses to closed questions).

		SA	MA	U or N/A	MD	SD	Agreement rating
Q29. The following agencies considered and used the recommendations of the committee appropriately	VIAA	8	3	4	-	-	.82
	CWS	5	3	6	-	1	.68
	DFO	3	4	6	1	1	.62
	TC	3	2	6	2	2	.53
Q30. The following agencies provided adequate feedback on how committee recommendations were used	VIAA	8	2	4	1	-	.78
	CWS	3	5	4	2	1	.61
	DFO	2	4	6	2	1	.57
	TC	2	3	7	2	1	.55

VIAA: Vancouver International Airport Authority; CWS: Canadian Wildlife Service; DFO: Department of Fisheries and Oceans; TC: Transport Canada
SA: strongly agree; MA: mildly agree; U or N/A: undecided, unsure, or not applicable; MD: mildly disagree; SD: strongly disagree. Agreement rating: average of responses, with SA=1.00, MA=.75, U or N/A=.50, MD=.25, and SD=.00.

Conclusions: Meetings provided adequate opportunities for member contribution: there was discussion, answering of questions, and consensus building. However, some members did not participate in discussions, while others had a tendency to monopolize the agenda. The airport authority considered and used the advice from the committee, and provided feedback. The three federal agencies did not, but they were not required to do it by the terms of reference.

Efficacy

The group considers all issues that are significant.

Most respondents (7/15 or 47% strongly agreed, 6/15 or 40% mildly agreed) thought that the committee considered and addressed all significant issues related to the Parallel Runway Project. One person (1/15, 7%) mildly disagreed. The airport authority modified some of its plans to accommodate the concerns identified by EMIC. Significant issues were identified by both government agencies and citizens. One person commented that issues were considered in a general basis, and none were too critical. Another comment specified that the issues addressed were those related to the accepted EARP recommendations, not to the project. These two comments point to the position of EMIC within the big picture of the Parallel Runway Project. The result of evaluating EMIC based on its efficacy would probably be different if instead of referring to significant

issues within the bounds of the terms of reference, we took a step back and considered whether the terms of reference themselves and the committee addressed the significant issues. One interviewee preferred not to answer the questionnaire because it did not discriminate between "easy" issues which have a technical solution and "hard" issues which deal with environment versus development priorities. This matter goes back to the limitations of collaborative processes mentioned in the literature review.

Conclusions: The committee addressed significant issues related to the Parallel Runway Project, identified by both agencies and citizens, at least within its terms of reference. A question was raised as to whether the terms of reference themselves allowed EMIC to address the significant issues.

Outcome evaluation

Positive Effects on Participants

Process results in improved communication, understanding, and trust among stakeholders. Participants have a favorable attitude towards collaborative process.

The majority of respondents (8/15 or 53% strongly, 3/15 or 20% mildly) felt that EMIC was an effective mechanism to foster communication and cooperation among stakeholder groups involved in environmental issues at YVR. Two people noted that EMIC did not deal with environmental issues in general but just with those related to runway and terminal building construction. One undecided respondent observed EMIC could have been more effective if government agencies had been more open. Another person emphasized that the committee worked as good channel of communication for issues that have technical solutions but would not serve to address more problematic environmental issues.

Regardless of what their expectations were, most interviewees (7/15 or 47% strongly, 6/15 or 40% mildly) declared that their involvement with EMIC satisfied their expectations. Two people were undecided or did not reply. Most respondents (6/15 or

40% strongly, 6/15 or 40% mildly) said they would be willing to participate in a committee like EMIC again in the future. Among those undecided or who did not answer (3/15 or 20%), people stated that this type of process takes a lot of time and can be frustrating at times.

Based on the results, EMIC was successful at improving communication and trust between the airport authority and other stakeholders in the Parallel Runway Project, which was the main purpose of establishing the committee. However, in providing a forum for public review, the committee could have contributed to communication and trust among all stakeholders in the project. It seems that, due partly to the set up of the committee, and partly to the attitudes of CWS, DFO, and Transport Canada towards the process, these agencies missed the opportunity to establish themselves as open and collaborative to some stakeholders.

Conclusions: EMIC was successful at improving communication and trust between the airport authority and other stakeholders. CWS, DFO, and Transport Canada missed the opportunity to establish themselves as open and collaborative to some stakeholders. Participants were generally satisfied and would participate again. The process worked for issues that had technical solutions and did not involve environment versus development judgments.

Positive Effects on the Biophysical Environment

Decisions made during the public involvement process lead to improved environmental protection in the course of project implementation.

Interviewees were first asked about environmental protection during the implementation of the Parallel Runway Project concerning air and water quality, wildlife and fisheries habitat, archaeological heritage, and noise (table 4.3). Many respondents were undecided or did not answer parts of this question. Issues directly related to construction activities such as air and water quality, fisheries habitat and its compensation, and archaeological heritage, seem to have been adequately addressed by the airport authority.

Permanent issues, concerning the conversion of land to airport use and the operation of the airport were more complex. The most problematic issue identified was noise. Five respondents (2/15 or 13% strongly agreed, 3/15 or 20% mildly agreed) believed that the environment was adequately protected concerning noise. Four disagreed (3/15 or 20% mildly, 1/15 or 7% strongly), and six (6/15 or 40%) were undecided or did not answer. Noise, air quality concerns from plane traffic and ground transportation, and the loss of wildlife habitat are permanent impacts of airport expansion that have no solution.

Table 4.3: Respondents answers to question 35 on environmental protection during project implementation (see Appendix 1 for full questionnaire and responses to closed questions).

Q35. In your experience, the environment was adequately protected during the implementation of the Parallel Runway Project concerning:	SA	MA	U or N/A	MD	SD	Agreement rating
(a) air quality	5	1	9	-	-	.68
(b) water quality	7	5	3	-	-	.82
(c) wildlife habitat	7	3	4	-	1	.75
(d) fisheries habitat	8	4	3	-	-	.83
(e) archaeological heritage	9	1	5	-	-	.82
(f) noise	3	2	6	3	1	.55

SA: strongly agree; MA: mildly agree; U or N/A: undecided, unsure, or not applicable; MD: mildly disagree; SD: strongly disagree. Agreement rating: average of responses, with SA=1.00, MA=.75, U or N/A=.50, MD=.25, and SD=.00.

Next, respondents were asked to link environmental protection to the work of EMIC. Most of them (4/15 or 27% strongly, 7/15 or 47% mildly) agreed that environmental performance during the implementation of the Parallel Runway Project benefited from the work of EMIC. According to the results, the committee provided for better coordination between the airport authority and the government agencies involved; it also allowed environmental groups to raise concerns, resulting in a broader range of issues being addressed. However, respondents' answers indicate that the effective performance of the environmental management program for the project was a result of the authority's environment staff, not of the committee's influence. The majority of respondents thought

that changing the structure or functioning of the committee could not have avoided any environmental issues raised during project implementation.

Conclusions: Construction related environmental issues were adequately addressed by the airport authority. Permanent issues concerning conversion of land and airport operation have no solution. Effective environmental performance was largely due to the airport authority's staff; EMIC did not have much influence. EMIC allowed improved coordination of airport authority with agencies and a broader range of issues to be raised and addressed.

Successful Overall Outcome

Collaborative process is effective and adequate for the task of project implementation and monitoring. Process contributes to regional sustainability.

Most respondents (8/15 or 53% strongly agreed, 3/15 or 20% mildly agreed) said they would recommend a committee like EMIC to monitor environmental management programs and their implementation in a future project of similar scale. Several points of improvement were suggested, some of which have already been mentioned throughout this chapter: regarding the structure of the group, better clarification of roles and responsibilities of members as well as of all committees involved in the project, and perhaps a simplified configuration with less committees. There were mixed comments on what should be the influence of the committee. Influence can be built into the process, defining the group's authority in the terms of reference, or can be dependent on the actors involved. This second option is more flexible, but has more potential to frustrate the expectations of those involved. Other comments called for more inclusive representation of citizen groups and formalized channels of reporting to constituencies. With respect to process function, support for the process in the part of the participating government agencies is a key factor.

A few respondents observed that the suitability of an arrangement such as EMIC depends on each specific situation. A combination of two circumstances, present in this case

study, make a monitoring and implementation committee especially appropriate. First is a large, complicated project with multiple stakeholders, including different government levels and substantial public interest and debate. Second, the absence of a checking system to allow stakeholder input throughout project implementation (such as a permit approval structure that involves multiple levels of government and provides for public consultation).

Based on the results, EMIC was largely a success. The majority of interviewees (6/15 or 40% strongly agreed, 7/15 or 47% mildly agreed) claimed that it was an effective mechanism to monitor the airport authority's environmental management program and its implementation during the construction phase of the Parallel Runway Project. Two respondents (2/15, 13%) were undecided or did not answer. Given the covenant that the parallel runway was going to be built, EMIC contributed to dialogue among stakeholders and by extension to ensure the impacts of the project were minimized, according to the answers of respondents. Few interviewees (2/15 or 13% strongly, 1/15 or 7% mildly) believed that monitoring the implementation of the airport authority's environmental management program for the Parallel Runway Project contributed to regional sustainability: as a process, its scope and mandate do not allow it to address regional sustainability. One respondent commented that the Parallel Runway Project had a net negative effect on sustainability; however, EMIC played a role in minimizing the project's impacts.

Conclusions: Participants consider EMIC an effective mechanism to monitor project implementation. Possible improvements suggested include: clarification of roles and responsibilities of members and other committees in the project; possible simplification of the number of committees; changes to the influence of the committee; more inclusive representation of public groups and formal channels of reporting to constituencies; and support for the process by government agencies. The suitability of an arrangement like

EMIC to future projects depends on the characteristics of each situation, namely the complication of the project and the regulatory structures in place.

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

This chapter begins with a summary assessment of the case study. Next, more specific lessons learned from the study are presented under major themes. A third section takes a step back to take a look at broader issues in choosing a model for public participation. All this material is used to formulate recommendations for the design of institutional arrangements for monitoring. Finally, the chapter and this study conclude with some ideas for future research.

Summary Assessment

The results indicate that overall the Environmental Monitoring and Implementation Committee (EMIC) was a good process of public participation with a number of beneficial outcomes. The committee was effective at developing lines of communication between the airport authority and other stakeholders participating in the process. The airport authority was supportive of the process and allowed it to reach its maximum potential. Participants were generally satisfied with the experience and most would participate again. This process was successful in making the construction of the parallel runway visible to the public. The process improved coordination of the airport authority with government agencies and allowed a broad range of issues to be raised and addressed during construction of the parallel runway. Effective environmental performance was largely due to the airport authority's staff: the direct influence of the committee in this regard was minor.

This evaluation raised several issues. Was EMIC a sufficiently public forum or was it exclusive to a few players? Could lines of communication also have been established between implementation actors other than the airport authority, namely CWS, DFO, and Transport Canada, and the remaining stakeholders? How should a public advisory committee like EMIC fit within the larger context of project development? These issues

are discussed by examining how procedural aspects and the context of the Parallel Runway Project affected EMIC's outcomes.

Collaborative Processes: Lessons Learned

Process Design

The terms of reference of a collaborative process should be clear, comprehensive, and reflect the expectations of process participants as much as possible. They should ensure meaningful participation, providing for two-way communication among all participants. The success of a process is highly dependent on this crafting stage, just as the implementation of any project or program is dependent upon adequate planning. Concrete procedures and ground rules should be specified. Participants should not only agree with the terms of reference but participate in designing them. The initial discussion and agreement on the content of the terms of reference ensures that everyone is clear about his or her own role, the roles of other players, and the mechanics of the process, and can adjust their expectations accordingly.

EMIC's members had little involvement in establishing the committee's terms of reference. As is typical of advisory committees, the process sponsor established the responsibilities and focus (Renn, Webler, and Wiedemann 1995). Experience revealed, however, that EMIC would have benefited from additional clarification on its authority, procedural aspects, and roles of participants. Such clarification would have been particularly important given the complexity of the project, involving different agencies and advisory committees.

EMIC's terms of reference were broad, allowing flexibility. This flexibility favored the process, thanks to the staff of the airport authority who used the opportunity to be open to suggestions and accommodating. A process that is rigidly structured tends to lose some flexibility, though flexibility can be built into the process by including mechanisms of assessment and change. A relaxed structure, however, has the disadvantage of leaving a

process at the mercy of attitudes and personalities. In any mechanism of stakeholder involvement there will be a delicate balance between the structure and the flexibility of the process. EMIC owes much of its success to its flexibility and the favorable attitude of the process sponsor. Although this was a strength in the case of the relationship between the airport authority and other committee members, it is not suitable for all situations. In this same case study, for instance, CWS, DFO, and Transport Canada adopted a position of not collaborating beyond the minimal requirements of the terms of reference.

Representation

A major weakness of advisory committees is often their lack of broad representation of public values and interests (Lynn and Kartez 1995). The advisory committee model works where the public is relatively well organized (Vari 1995). This system allows different interests to be visible and facilitates reporting back to constituencies. In the YVR case study, some interviewees voiced a concern about representation of public interests in EMIC, both in terms of public committee members and of outreach to the general public. Some public interests were well organized and had been involved in the project for a long time, but not all the publics affected by the project were visible and active. For instance, single citizens do not easily articulate the interests of large and diverse constituencies, such as cities. EMIC could have made a greater effort to break its isolation from the general public through open houses, workshops, and other such techniques to reach out.

EMIC had excellent representation of all relevant levels of government. Comparatively, the number of members from public groups was small. A greater balance between committee members that participated as part of their job and those from the public that volunteered their time could be beneficial. These two groups have different needs, for example concerning access to information and time availability, which can be better served when one of them is not a minority. Members from the public often provide broad perspectives which counterbalance those of civil servants, whose views normally reflect the preferences of the organization they represent. In a project such as the parallel

runway, with a great complexity of stakeholders, achieving balanced representation is a difficult task given that advisory committees admit only a limited number of participants.

Support for the process

Collaboration relies on good will; hence, the support of all actors for this type of process is critical. The support of government agencies is particularly crucial since they have the power to consider the input from stakeholders when making decisions. Unfortunately, government consultation with the public is often characterized by latent manipulation, such as requesting the public view on an issue when the basic decisions have already been made (Lynn and Kartez 1995). Indeed, a prerequisite for the effectiveness of the advisory committee model is the transparency of decisions and disclosure of information (Vari 1995). The promise of collaborative processes for better decision making hinges on the attribute of fairness. Fairness at the discussion table implies that all players have equal knowledge and an open attitude.

The YVR example revealed a halfhearted participation by CWS, DFO, and Transport Canada, which was in accordance with the committee's terms of reference. The enthusiasm and openness of the airport authority to fully involve the publics in committee work stands in sharp contrast to the attitudes of these three federal agencies. The case study identified several direct barriers organizations face to become more supportive of collaborative processes, including lack of resources and preparation, confidentiality concerns which prevent discussion of certain issues, and decision-making power above representatives at the table. Barriers to collaboration are often rooted in organizational cultures that are highly hierarchical and resist change, and administrator training that lacks in interpersonal skills such as communication and facilitation (King, Feltey, and O'Neill 1998, Yaffee 1996). The findings of this study suggest the need for research on the challenges institutions face to embrace more collaborative decision making.

Choosing a Model for Public Participation

The relative success of past public participation efforts shape the attitudes and expectations of government agencies and citizens towards a project. In a review of different models for citizen participation in environmental issues, Renn, Webler, and Wiedemann (1995) observed that, depending on the context of each situation, certain attributes of fairness and competence become more important. Thus collaborative models that engender these attributes become the most promising approaches to explore. This case study substantiates the hypothesis that advisory committees based on a consensual approach that allows regular face-to-face interaction among committee members can be effective at promoting harmonious relations and trust among participants. Conversely, they do not function well as a mechanism for reconciling conflicting worldviews and values.

Although this research studied only the process of stakeholder involvement embodied by EMIC, it cannot be completely removed from the larger context of the Parallel Runway Project. The process under study is unique in that it is exclusive to one stage of the project, its implementation. The project itself had a long history where stakeholders were involved using different methods at various stages (fig. 5.1). These circumstances affected the outcomes of the case study process as much as the process design.

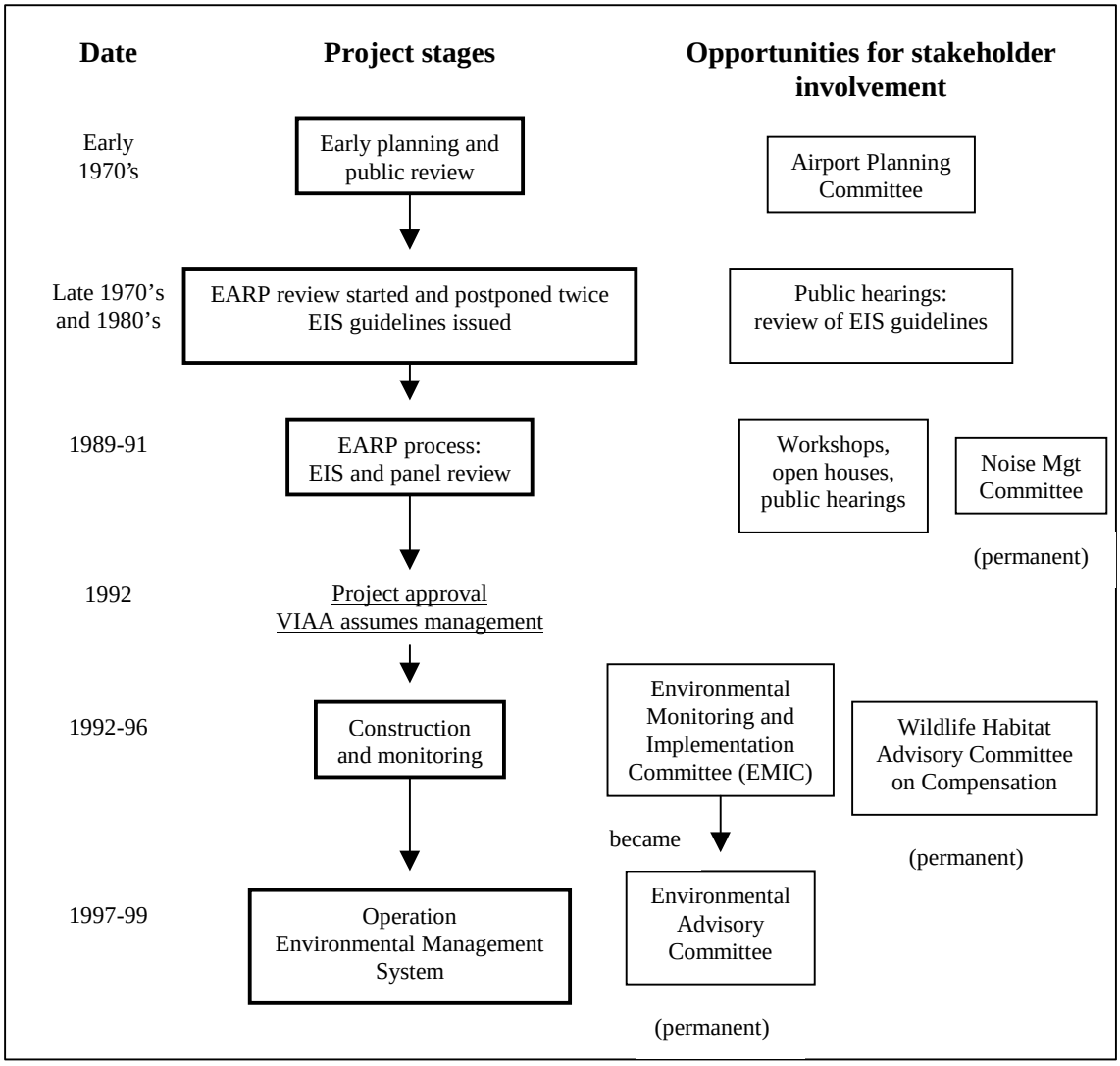
Considering the context of the Parallel Runway Project, could public participation during project implementation have been structured differently to increase its effectiveness? There were three committees involved in monitoring project construction: EMIC, a noise committee, and a wildlife committee (table 3.1), simplified from the institutional arrangements proposed by the EARP panel which consisted of six committees (fig. 3.2). In effect, two committees were not adopted as suggested for air quality management and water quality/pollution control management. The function of a proposed culture and recreation committee was fulfilled by a Sea Island Parks and Recreation Planning Group.

Clearly three committees proved to be sufficiently complex to generate confusion regarding the role of each body.

With the advantage of hindsight, changes to the monitoring committee structure adopted at the Vancouver Airport would have been beneficial. The institutional arrangements could have been further simplified to include one, or at most two, committees, though that may have put a greater work load on one single committee. Alternatively, the three committees could have been better integrated, with clear communication procedures among them so they could function as a single monitoring entity. This would have required a greater effort on the part of the participating authorities to coordinate their work. In fact, the artificial compartmentalization of the biophysical environment under administrative jurisdictions poses perhaps the greatest challenge for managing impacts on a biophysical environment that functions as an integrated system. Greater integration of committees can be achieved by avoiding having different organizations chairing them, as occurred in the case study with the airport authority and CWS. Alternative chairing arrangements could include independent chairs, not affiliated with any of the organizations participating in the committees, or co-chairing by more than one organization.

Advisory committees are an intensive method of public participation requiring regular, long-term, active participation from their members. Some stakeholders, particularly line agencies, could argue that their presence is not necessary all the time, but only when issues concerning their areas of responsibilities are discussed. Regular participation of major stakeholders through advisory committees could be combined with ad hoc participation methods to deal with specific issues that include a different range of participants, as well as ad hoc methods that reach a broader public.

Figure 5.1: Stakeholder involvement during the Parallel Runway Project



General recommendations

The conclusions of this study allow some general recommendations to strengthen a participatory framework for environmental monitoring:

Recommendation 1: Stakeholders should be involved at every stage of a project or program, from planning through to implementation and monitoring. Different methods or a combination of methods might be used, but collectively they should provide for

continuous and meaningful participation, with two-way communication in a collaborative atmosphere.

Recommendation 2: Different models of involving the public suit different situations. An effort should be made to match the model to the existing circumstances and desired outcomes. Advisory committees should be used to build good relations and trust among multiple stakeholders that represent well-organized interests and can commit to regular, long-term consensual involvement . They can be complemented by ad hoc methods at appropriate times to involve stakeholders who cannot commit to full participation in an advisory committee, as well as to involve the broad, unorganized public.

Recommendation 3: Complex institutional arrangements for monitoring, involving different methods of stakeholder participation or otherwise more than one process, such as several committees, should be set up to ensure that overall they form an integrated project monitoring and implementation program. Independent committee chairs are advisable to avoid the complexity added by chairing organizations that have different jurisdictions.

Recommendation 4: Members of advisory committees should represent organized public interest groups. In instances where such groups do not exist, a committee should be combined with other methods of public involvement that can target a large, unorganized public. In any event, a significant effort should always be made to reach out to the broader public. The number of volunteer public members on a committee should be balanced with the number of members who participate as part of their job, in order to serve better the different needs of these two collectives.

Recommendation 5: Participation processes should invest enough time in designing clear and comprehensive terms of reference in a consensual style. The terms of reference should include the group's authority, responsibilities such as a mandate and concrete

activities, and procedural aspects. They should provide for a collaborative and fair process. The roles of all participants should be widely understood.

Recommendation 6: Participation processes should be specific to each situation in terms of how much structure is desirable. In general, a well-defined process avoids misunderstandings and wrong expectations. Flexibility can be incorporated into the mechanics of a process by providing for regular self-assessment and facilitating change.

Recommendation 7: All stakeholders should demonstrate support for the process, particularly the authorities in charge of final decisions. Information should be readily available and decisions transparent. Participant government agencies should have the necessary resources to support a process to the level necessary.

Directions for Future Research

This research has made use of a case study to explore institutional arrangements for public participation and collaboration in environmental monitoring. It documents the experience of an advisory committee involved in monitoring the implementation of the Parallel Runway Project at Vancouver International Airport. Evaluating the success of a participation process within its context has provided information on this particular experience, as well as on the strengths and weaknesses of the advisory committee as a monitoring model. This study allowed a better understanding of participatory monitoring processes, which can be used to improve future efforts. The results suggest several questions for future research into the improvement of public processes:

- What are the barriers institutions face to become more supportive of collaborative approaches? How could such barriers be removed? What aspects of the training and development of public administration professionals and of organizational culture are related to those barriers?

- What are the differences in management approach, and their effect on environmental performance and transparency of local and national governance agencies at Vancouver International Airport? What elements of the Vancouver International Airport Authority approach differ from procedures followed by Transport Canada that make its activities more acceptable to the public?

- Are there examples of other participatory models for post-approval environmental monitoring, either completed or in progress, which could be evaluated and compared to the results of this investigation in search of lessons to improve future processes?

Appendix 1

QUESTIONNAIRE AND CLOSED QUESTIONS RESPONSES

The following questionnaire was presented to respondents with a title page that included instructions. Closed questions offered a set of ordered choices: SA: strongly agree; MA: mildly agree; U: undecided or unsure; MD: mildly disagree; and SD: strongly agree. In the first two sections, on process structure and function, numbered subheadings approximate the evaluative criteria (table 2.4) the questions refer to. The last section includes questions that refer to outcome evaluation criteria, which are indicated in brackets and italics.

Quantified responses to closed questions are indicated in italics following the question. These responses are best interpreted if read in conjunction with qualitative results reported in Chapter 4. The response category "undecided or unsure" has been combined with "not applicable" and is represented as *U or N/A.*

Introductory Questions

Q1. How did you get involved in EMIC?

Q2.(a) Were you, or are you, a member of any other airport environment committee other than EMIC?
(b) Which one?

Section I. EMIC Structure

1. Clear terms of reference

Q3. How were the terms of reference established?

Q4. (a) The terms of reference defined clearly EMIC's authority and responsibilities. Please elaborate
6 SA, 6 MA, 1 MD, 2 U or N/A

(b) To your understanding, what did "the Airport Authority's Environmental Program for the Parallel Runway Project" consist of? Did you agree with it?

Q5. I agreed with the terms of reference when EMIC was established.
Please elaborate

6 SA, 5 MA, 4 U or N/A

2. Relations with other environment committees related to YVR

Q6. The responsibilities of EMIC were distinct from those of other environment committees involved in the Parallel Runway Project.
Please elaborate.
5 SA, 7 MA, 1 MD, 2 U or N/A

Q7. (a) The different environment committees communicated clearly.
Please elaborate.
2 SA, 5 MA, 3 MD, 5 U or N/A
(b) Was there a need for greater interaction among the different environment committees? Please elaborate.

3. Representation

Q8. How were committee members identified and recruited?

Q9. (a) An adequate range of stakeholders was represented on EMIC.
Please elaborate.
8 SA, 7 MA

(b) Can you think of any individuals or groups with an interest in environmental issues related to the Parallel Runway Project that were not members of EMIC? Do you think they would have participated in EMIC if invited?

Q10. All committee members communicated adequately with the stakeholder groups they represented.
Please elaborate.
2 SA, 3 MA, 1 MD, 9 U or N/A

Q11. The committee took adequate measures to ensure communication with the broader public and with interests who may not have been represented in the committee.
Please elaborate.
7 SA, 4 MA, 1 MD, 2 SD, 1 U or N/A

4. Interaction among committee members

Q12. (a) Approximately, what percentage of EMIC meetings were you able to attend?
(b) Did you have an alternate spokesperson to take your place at EMIC meetings in your absence?
(c) I did not attend EMIC meetings more often due to (please rank in order of importance):
_____1. scheduling of meetings conflicting with other professional or personal responsibilities
_____2. time demands of meetings conflicting with other professional or personal responsibilities

_____3. lack of interest
_____4. other (please specify)_____
Please elaborate.

Q13. Missing committee members at meetings had an effect on EMIC functioning.
Please elaborate.
1 SA, 5 MA, 7 MD, 2 SD

Q14. Turnover in group/agency representatives had an effect on EMIC functioning.
Please elaborate.
7 MA, 5 MD, 2 SD, 1 U or N/A

Q15. Committee meetings were held with sufficient frequency.
Please elaborate.
7 SA, 8 MA

Q16. Committee meetings were long enough to cover all significant issues.
Please elaborate.
8 SA, 6 MA, 1 MD

Q17. Was there informal communication among EMIC members between meetings?
Please elaborate.

Q18. Committee meetings were scheduled at appropriate times in order to review and influence the implementation of initiatives related to the Parallel Runway Project.
Please elaborate.
5 SA, 4 MA, 3 MD, 3 U or N/A

Q19. Do you have any other suggestions on how meetings could have been more efficient?

5. Flexibility

Q20. (a) Was there any assessment of the effectiveness of EMIC?
(b) (If yes)
How was this done? Did any changes result?
(c) Was there flexibility in committee structure to address the full range of relevant issues related to the Parallel Runway Project? (by structure I am referring to committee responsibilities, authority, stakeholder representation, and interaction among members or with other committees) Please elaborate.
(d) Was there flexibility in committee function to address the full range of relevant issues related to the Parallel Runway Project? (by function I am referring to the committee's discussion and awareness of environmental concerns, and committee contributions) Please elaborate.

Section II. EMIC Function

1. Monitoring

Q21. EMIC members were aware of the environmental responsibilities of the Airport Authority in the implementation of the Parallel Runway Project.
Please elaborate.
8 SA, 6 MA, 1 MD

Q22. EMIC members were aware of the environmental responsibilities of other regulatory agencies involved in the implementation of the Parallel Runway Project.
Please elaborate
4 SA, 7 MA, 2 MD, 2 U or N/A

Q23. The next set of statements intends to measure the transparency of the implementation process.
The following organizations involved in implementing the accepted recommendations adequately:

(a) Discussed biophysical concerns.
Please elaborate.

Airport Authority (YVRAA)
9 SA, 3 MA, 1 MD, 2 U or N/A
Canadian Wildlife Service (CWS)
9 SA, 2 MA, 1 MD, 1 SD, 2 U or N/A
Department of Fisheries and Oceans (DFO)
7 SA, 2 MA, 2 MD, 1 SD, 3 U or N/A
Transport Canada (TC)
SA, 4 MA, 1 MD, 2 SD, 3 U or N/A

(b) Discussed proposed implementation actions.
Please elaborate

Airport Authority (YVRAA)
11 SA, 2 MA 2 U or N/A
Canadian Wildlife Service (CWS)
4 SA, 7 MA, 1 MD, 1 SD, 2 U or N/A
Department of Fisheries and Oceans (DFO)
6 SA, 4 MA, 1 MD, 1 SD, 3 U or N/A
Transport Canada (TC)
5 SA, 5 MA, 1 MD, 1 SD, 3 U or N/A

(c) Explained the scientific and engineering bases for implementation plans and recommendations.
Please elaborate

Airport Authority (YVRAA)
10 SA, 3 MA, 2 U or N/A
Canadian Wildlife Service (CWS)
6 SA, 5 MA, 2 SD, 2 U or N/A
Department of Fisheries and Oceans (DFO)
4 SA, 5 MA,1 MD, 2 SD, 3 U or N/A
Transport Canada (TC)
4 SA, 5 MA, 1 MD, 2 SD, 3 U or N/A

(d) Kept the committee informed of upcoming implementation decisions and opportunities for contribution.
Please elaborate.

Airport Authority (YVRAA)
8 SA, 3 MA, 4 U or N/A
Canadian Wildlife Service (CWS)
4 SA, 4 MA, 1 MD, 1 SD, 5 U or N/A
Department of Fisheries and Oceans (DFO)
4 SA, 2 MA, 1 MD, 2 SD, 6 U or N/A
Transport Canada (TC)
4 SA, 3 MA, 2 MD, 2 SD, 4 U or N/A

Q24. Overall, the following organizations did a satisfactory job informing relevant stakeholders and interested publics during the implementation process:
Please elaborate.

Airport Authority (YVRAA)
11 SA, 2 MA, 2 MD, 1 U or N/A
Canadian Wildlife Service (CWS)
6 SA, 4 MA, 2 MD, 1 SD, 2 U or N/A
Department of Fisheries and Oceans (DFO)
3 SA, 4 MA, 3 MD, 1 SD, 4 U or N/A
Transport Canada (TC)
3 SA, 5 MA, 4 MD, 1 SD, 2 U or N/A

Q25. The following organizations should have done things differently to increase the transparency of the implementation process.
. Please elaborate.

Airport Authority (YVRAA)

1 MA, 7 MD, 4 SD, 3 U or N/A

Canadian Wildlife Service (CWS)

1 SA, 3 MA, 8 MD, 1 SD, 2 U or N/A

Department of Fisheries and Oceans (DFO)

2 SA, 4 MA, 6 MD, 1 SD, 2 U or N/A

Transport Canada (TC)

2 SA, 5 MA, 5 MD, 3 U or N/A

2. Committee Contributions

Q26. Committee contributions to the implementation process were only advisory in nature.

Please elaborate.

9 SA, 4 MA, 2 U or N/A

Q27. All members had an equal and adequate opportunity to contribute to committee recommendations.

Please elaborate.

9 SA, 4 MA, 1 MD, 1 U or N/A

Q28. (a) The input of individuals was discussed and considered by the full committee.

Please elaborate

6 SA, 5 MA, 4 U or N/A

(b) Did committee members ever try to reach consensus on an issue being discussed? Please elaborate.

Q29. The following agencies considered and used the recommendations of the committee appropriately:

Please elaborate.

Airport Authority (YVRAA)

8 SA, 3 MA, 4 U or N/A

Canadian Wildlife Service (CWS)

5 SA, 3 MA, 1 SD, 6 U or N/A

Department of Fisheries and Oceans (DFO)

3 SA, 4 MA,1 MD, 1 SD, 6 U or N/A

Transport Canada (TC)

3 SA, 2 MA, 2 MD, 2 SD, 6 U or N/A

Q30. The following agencies provided adequate feedback on how the committee recommendations were used:

Please elaborate.

Airport Authority (YVRAA)

8 SA, 2 MA, 1 MD, 4 U or N/A

Canadian Wildlife Service (CWS)

3 SA, 5 MA, 2 MD, 1 SD, 4 U or N/A

Department of Fisheries and Oceans (DFO)

2 SA, 4 MA, 2 MD, 1 SD, 6 U or N/A

Transport Canada (TC)

2 SA, 3 MA, 2 MD, 1 SD, 7 U or N/A

3. Efficacy

Q31. The committee considered and addressed all <u>significant</u> issues related to the Parallel Runway Project.

Please elaborate.

7 SA, 6 MA, 1 MD, 1U or N/A

SECTION III. Outcome and Recommendations

(Positive Effects on Participants)

Q32. EMIC was an effective mechanism to foster communication and cooperation among stakeholder groups involved in environmental issues at YVR.

Please elaborate.

8 SA, 3 MA, 1 MD, 3 U or N/A

Q33. Involvement in EMIC satisfied my expectations.

Please elaborate.

7 SA, 6 MA, 2 U or N/A

Q34. I would be willing to participate in a committee like EMIC again in the future.

Please elaborate.

6 SA, 6 MA, 3 U or N/A

(Positive effects on the biophysical environment)

Q35. In your experience, the environment was adequately protected during the implementation of the Parallel Runway Project concerning:

(a) air quality

5 SA, 1 MA, 9 U or N/A

(b) water quality

7 SA, 5 MA, 3 U or N/A

(c) wildlife habitat

7 SA, 3 MA, 1 SD, 4 U or N/A

(d) fisheries habitat

8 SA, 4 MA, 3 U or N/A

(e) archaeological heritage

9 SA, 1 MA, 5 U or N/A

(f) noise

3 SA, 2 MA, 3 MD, 1 SD, 6 U or N/A

(g) others (please specify)_____

Q36. Please elaborate on what problems, if any, emerged related to:

(a) air quality
(b) water quality
(c) wildlife habitat
(d) fisheries habitat
(e) archaeological heritage
(f) noise
(g) others (please specify)_____

Q37. Environmental performance during the implementation of the Parallel Runway Project benefited from the work of EMIC.
Please elaborate

4 SA, 7 MA, 4 U or N/A

Q38. If there were any issues during project implementation, do you think they could have been avoided by having a committee with different structure or function? Please elaborate.

(Successful overall outcome)

Q39. (a) In a similar scale of project in the future, I would recommend a committee like EMIC be created to monitor environmental management programs and their implementation.
Please elaborate.

8 SA, 3 MA, 1 MD, 3 U or N/A

(b) What changes would you recommend regarding committee structure or function? Please elaborate.

Q40. In summary, EMIC was an effective mechanism to monitor the YVRAA's environmental management program and its implementation during the construction phase of the Parallel Runway Project
Please elaborate.

6 SA, 7 MA, 2 U or N/A

Q41. In your experience, monitoring the implementation of YVRAA's environmental management program for the Parallel Runway Project contributed to regional sustainability by addressing the cumulative impact of development in the Lower Mainland.

Please elaborate.

2 SA, 1 MA, 5 MD, 3 SD, 4 U or N/A

Q42. In your experience, current monitoring of environmental management at YVR contributes to regional sustainability by addressing the cumulative impact of development in the Lower Mainland.
Please elaborate.

1 SA, 3 MA, 2 MD, 2 SD, 7 U or N/A

Q43. Is there anything else you would like to comment on regarding EMIC or environmental management at YVR?

Q44. Who else do you recommend I talk to regarding their involvement with EMIC or environmental management at YVR? (to answer this questionnaire and/or for information)

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