

AN ANALYSIS OF PUBLIC PARTICIPATION  
IN THE ALCAN ALUMINUM SMELTER REVIEW PROCESS

by

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## ABSTRACT

This report discusses public participation in a Megaproject Environmental Assessment and Review Process, specifically, the Alcan aluminum smelter review process. Two methods are employed to assess the Alcan process - the first, a review of related literature on public participation and environmental assessment processes. Secondly, a survey of public attitudes and concerns towards the megaproject assessment and review process.

A set of ideal guidelines for government, industry or proponent, and the public to follow in an environmental assessment and review process is developed. These guidelines are discussed in chapter seven of the report, along with a critique of the events that occurred in the Alcan review process.

A modified megaproject environmental assessment and review process is developed, based on the results of the review of related literature; attitude survey; and an examination of the Manitoba Environmental Assessment and Review Process and the review process formulated to review the Alcan proposal. This modified Megaproject Environmental Assessment and Review Process is presented and discussed in chapter seven.

Four recommendations are advanced in chapter eight specific to the Alcan process. These recommendations apply more generally to the Manitoba Environmental Assessment and Review Process. In summary, I recommend:

- 1) A legislative basis to the Manitoba Environmental Assessment and Review Process;
- 2) An expanded definition of environment to include the socio-economic environment;
- 3) Financing of legitimate interest groups; and
- 4) A clear definition of the Environmental Assessment and Review Process. This should outline all opportunities for public involvement; information for the public on the review process; opportunity for the public to participate in the development and review of the EIA guidelines and completed environmental impact statement; and requiring both government and industry to involve the public in the review process.

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## Chapter 1

### THE PROBLEM AND ITS SETTING

#### 1.1 Background

The prospect of megaprojects [such as Alcan, Limestone, and the Western Power Grid] in the late 1970's offered to provide Manitoba with the basis for economic development for the 1980's and 1990's. However, these projects have all apparently been postponed for the foreseeable future.

An aluminum smelter was one of the megaprojects proposed for the province of Manitoba. Its proponent, the Aluminum Company of Canada (Alcan), developed its interest in Manitoba because of the prospect of relatively inexpensive and abundant hydroelectricity. In late 1979, the then Deputy Minister of the Manitoba Department of Economic Development and Tourism [Mr. D. S. Rogers] wrote to Alcan Vice-President of Research, Technology and Engineering, inviting the company to consider Manitoba as a possible location for an aluminum smelter. Manitoba's relatively inexpensive electricity, freeze on hydro rates, and abundance of a renewable hydro resource were cited as enticements.

Following a preliminary feasibility study and a public survey, Alcan announced on September 23, 1981, the selection of a 50 sq. km. preferred site in the Rural Municipality of Rockwood. Ten days later, the company pinpointed an exact 15.5 sq. km. site west of Balmoral between the towns of Stonewall

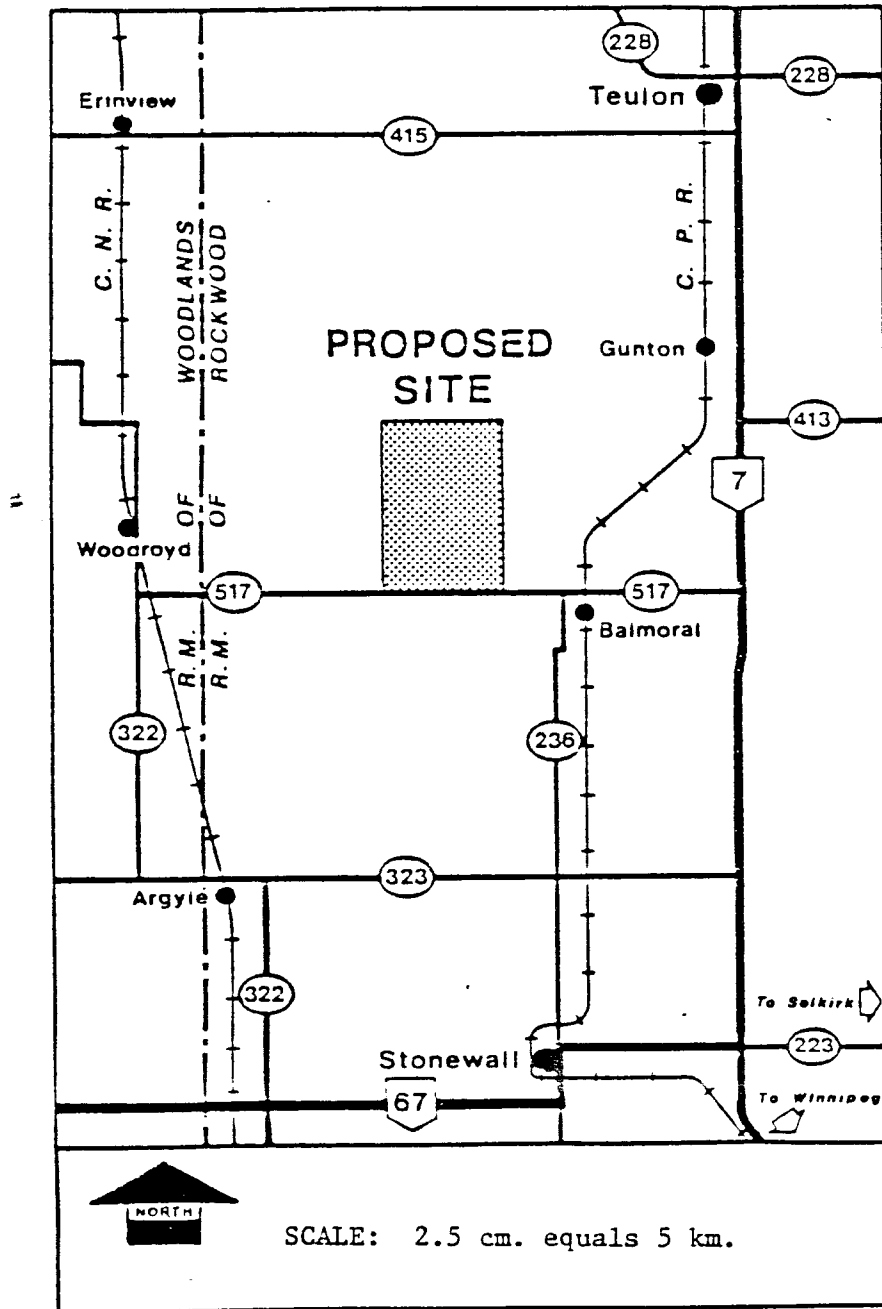
and Teulon, and indicated that right-of-way access agreements had been negotiated with affected landowners (see Map 1). Less than a year later, in June 1982, Alcan withdrew the smelter proposal from Manitoba for an indefinite period.

Since the withdrawal of the Alcan aluminum smelter proposal, many people in government, industry, and from the public at large have expressed concern over the effectiveness of the public participation component of the megaproject review process set up in Manitoba to review the Alcan proposal. This study undertakes a retrospective evaluation of the Alcan smelter review process, with a view to developing recommendations for improvement in the public participation component of the current review process should similar projects be proposed in the future. The research examined the Alcan smelter review process, and in particular the public participation procedure that was employed, focusing on the perspectives and attitudes of the Manitoba public towards these procedures.

The Alcan smelter review process differed from the regular project review process used in Manitoba. A modified version of the Interdepartmental Planning Board/Manitoba Environmental Assessment and Review Process for government projects was adopted for this purpose (see Figure 1, page 18).

The principle features of this process, aimed at addressing the more elaborate review requirements of megaprojects such as the proposed smelter, were as follows:





Map 1: Proposed site of Alcan Aluminum Smelter

- 1) Alcan prepared a project impact assessment according to the guidelines produced by the Province;
- 2) Government closely monitors the assessment while it is being prepared;
- 3) The preparation and review of the impact assessment is divided into two distinct segments, (environmental and socio-economic), each with a separate set of guidelines;
- 4) The government review for each of these segments is managed separately by its own Impact Assessment Advisory Committee. The Impact Assessment Advisory Committees monitored Alcan's impact assessments as they were being prepared and then prepared the review reports of Alcan's statements.
- 5) Public hearings were to be held after the completion of Alcan's socio-economic and environmental impact statements and the government's reviews on these statements. The Clean Environment Commission was to hold hearings on the environmental aspects of the project; a Socio-Economic Review Commission was to be set up to consider the socio-economic impact statement. These hearings would make recommendations to Cabinet on their various responsibilities. Cabinet would then arrive at a final decision (Manitoba Government, 1981).

## 1.2 Problem Statement

Public participation has become a common and necessary element of political decision-making. It is no longer unusual to hear government, corporate and institutional leaders supporting some degree of public involvement and consultation. Public participation is now considered a regular part of the formal procedures for major project examination and approval established by the Federal and Provincial governments. Providing for meaningful public participation is sound environmental politics. A clean and stable environment has a price which is measured not only in economic values but consists of a loss of individual discretion in some decisions. To be politically feasible, environmental policy must obtain broad public support for the tradeoffs it entails. The best way to obtain and ensure public support is to involve citizens directly in the environmental issue and have them participate in the decision-making process (Elder, 1975).

After Alcan decided to indefinitely postpone the construction of an aluminum smelter in Manitoba, the idea of having an Environmental Assessment and Review Process that involves an appropriate level of public participation in the process has crystallized. A survey of the attitudes of the Manitoba public (particularly those residents of the Rockwood Municipality) towards the Alcan aluminum smelter review process was conducted. The survey provided insights into the Alcan review process leading to the revision of the Megaproject Environmental Assessment and Review Process.

### 1.3 Need for the Study

This study was required to upgrade the public participation component in the megaproject review process in Manitoba. The study was done in anticipation of major projects appearing on the scene in the future and in recognition that the government was not well prepared to undertake an assessment of the Alcan project.

### 1.4 Limitations

Owing to monetary and time constraints, this project was limited to consideration of the public participation experience associated with the Alcan megaproject.

### 1.5 Objectives

The goal of the study was to examine, assess, and make recommendations for improvements to the public participation component of the Megaproject Environmental Assessment and Review Process in Manitoba. Objectives that were set to reach this goal are:

- 1) Evaluation of the attitudes and opinions of the Manitoba public towards the public participation component of the Alcan environmental assessment and review process and relate these results to the current megaproject review process in Manitoba;

- 2) Examination and discussion of criteria necessary for assessing public participation in a review process and analyze the Alcan smelter review process based on these criteria; and
- 3) Construction of a Megaproject Environmental Assessment and Review Process model that provides for an appropriate degree of public participation in the review of proposed major projects.

#### 1.6 Content Outline

Chapter Two of this report consists of the research methods used in the study. Chapter Three is a review of the Manitoba Environmental Assessment and Review Process and of the Alcan (Megaproject) Environmental Assessment and Review Process. In Chapter Four, public participation literature is reviewed to develop criteria for assessing a review process. This continues in Chapter Five, where further criteria are developed based on a review of assessment processes in other provinces in Canada.

The results of the attitude survey conducted are discussed in Chapter Six, adding to the basis for understanding and evaluating the Alcan review process.

In Chapter Seven, guidelines for government, industry and the public to follow in an assessment process are discussed, as well as the modified process for megaproject assessment. Finally, in Chapter Eight, six recommendations are

put forth for the purpose of improving the megaproject review process (specifically, and EARP in general).

## Chapter 2

### RESEARCH METHODS

The study involved three phases of data collection and analysis. Phase one involved a review of related literature. This included the researcher obtaining a background knowledge of EARP in Manitoba through conversations with the staff of the Assessment and Review Support Services and MEARA, and examining and studying publications and reports on this topic. The literature review includes a section on public participation and public participation in the Manitoba Environmental Assessment and Review Process. Public involvement in the assessment processes of Alberta, Saskatchewan, and Quebec were chosen for comparison with the Manitoba process. Upon completion of the literature review, a list of relevant criteria for assessing public participation in a review process were developed. These criteria are later used to critique the Alcan aluminum smelter proposal, environmental assessment and review process.

Following this initial phase of research, a questionnaire was developed to survey a select group of the Manitoba public (primarily residents of the R.M. of Rockwood), Alcan personnel and personnel of Government agencies involved in the smelter proposal review. From the results of the questionnaire, the following areas of concern were assessed:

- 1) how the respondents perceived the Alcan environmental assessment and review process;
- 2) strengths and weaknesses of the process;
- 3) what role the respondents believed government, Alcan and the public had in the process;
- 4) what role the respondents believe that government, industry and the public should have in the process;
- 5) whether any similarities existed in anti-Alcan and pro-Alcan sentiments;
- 6) whether any change in attitude towards Alcan had occurred following the decision to postpone construction;
- 7) what impacts, if any, the respondents believed an aluminum smelter would have on the area;
- 8) what possible changes, if any, the respondents would like to see in the review process of megaprojects; and .
- 9) if any social fragmentation occurred in the area as a result of the Alcan smelter review process, and whether, if it did occur, it is still present.

From the results of the foregoing phases of research, conclusions were reached regarding the review process of the Alcan smelter proposal. These conclusions were used to modify the megaproject review process, and formed the basis for recommendations to improve the existing process. This resulted in a simplified model for environmental assessment and review



for megaprojects that involved a greater degree of public participation.

## 2.1 The Questionnaire

A select sample population was interviewed to examine the attitudes and perceptions of the Manitoba public towards the public participation component of the Alcan aluminum smelter review. Thirty (30) persons were interviewed either in person or through telephone conversations. The sample population of thirty people was deemed to provide an appropriate cross section of participants under the time and budget limitations of the study. It was neither possible nor particularly desirable to conduct a statistically significant study (the adult population of the R.M. of Rockwood in 1980, according to the most recently available voters list was 4255). By personally conducting all the interviews and interviewing those who were most involved or had a great interest in the Alcan aluminum smelter proposal, a response rate of 100% was achieved.

Twenty-one persons were interviewed from the R.M. of Rockwood including people from within the buffer zone (an area left surrounding the smelter where compensation was to be paid to the residents); people just outside this buffer area; people from the towns of Stonewall, Teulon and Balmoral; and members of the Rockwood Smelter Study Group (an independent study group set up at the time of the Alcan proposal to examine the effects

of aluminum smelters). From these people, a wide variety of views were represented. Three persons from the Manitoba government; one person from the federal government; three Alcan personnel; and two persons from the Winnipeg area (who were involved in the review) were interviewed to obtain their views on the process that was used to review the Alcan smelter proposal. These people provided for a cross-section of views (for, against, and neutral) concerning the Alcan aluminum smelter review process.

The interviews took the form of standardized, open-ended interviews, consisting of a set of carefully worded and arranged questions, with the intention of having each respondent answer the same question worded in the same manner in a similar sequence. This type of format is conducive to minimizing variation in the questions posed to interviewees. The format reduces the possibility of bias that originates from having different interviews for different people, and the problem of obtaining more comprehensive data from certain people while getting less systematic information from others. Two major reasons for using this process as part of the evaluation were:

- 1) the exact instrument used in the interviews is available for examination by decision makers and information users; and
- 2) the interview is highly focused so that interview time is carefully used.

This method also makes data analysis easier because it is possible to locate each respondent's answer to the same question quickly, and organize questions and answers that are similar. The questionnaire provided for a large amount of input by the respondents so that they could include any personal comments or opinions. (Appendix B outlines the questionnaire that formed the basis for interviews).

Some limitations decrease the effectiveness of the standardized, open-ended interviews. These include:

- 1) little flexibility is present in relating the interview to particular individuals and circumstances; and
- 2) standardized wording may constrain and limit the naturalness and relevance of questions and answers.

In some cases, where the interviewee was not from the local area, some questions were not relevant and these were excluded from the interview. However, a basic set of questions were asked of each person interviewed.

## Chapter 3

### REVIEW OF MANITOBA PROCESSES

This chapter examines the current process for environmental assessment in Manitoba (EARP) and the process that was set up to review the Alcan aluminum smelter proposal (megaproject review process).

#### 3.1 Manitoba's Review Process

An environmental assessment is defined in the report "An Environmental Assessment and Review Process for Proposed Provincial Projects" (1976) as a process designed to inform the decision-making authority of the potential effects of a proposed project on the environment.

The Manitoba Environmental Assessment and Review Process (EARP) was formally approved in this province in November 1975. The process is intended to be a preventive strategy or mechanism to identify and resolve potential environmental problems related to air, water, and soil pollution of a proposed project (Manitoba Government, 1978). All projects proposed by the provincial government and its crown corporations that may significantly affect the environment are required to be subject to the assessment and review process. Manitoba's EARP is government policy and therefore is applicable to provincial government actions and not that of private industry.

The assessment process is designed to protect the environment of Manitoba, and more specifically, to ensure the following:

- 1) environmental assessments are carried out for all proposed provincial projects that may significantly alter or affect the environment, as a result of contamination of air, water and soil;
- 2) the results of the environmental assessment are subject to review by Cabinet who may permit, modify, or disallow the proposed action; and
- 3) the results of the assessment and all subsequent recommendations and conditions applicable thereto, will be used in the planning, implementation, and operational phases of the project if approved (Manitoba Government, 1976).

The Manitoba Environmental Assessment and Review Agency (MEARA) was established within the former Department of Consumer and Corporate Affairs and Environment (now Department of Environment and Workplace Safety and Health) to implement the newly formed review process. MEARA's primary responsibilities are to:

- 1) review proposals for all new projects or proposals respecting major alterations to existing facilities;
- 2) exempt those projects which would not require a thorough assessment;

- 3) recommend to the Minister of Environment, those projects which in the judgement of the Review Agency require an environmental assessment;
- 4) provide environmental impact guidelines;
- 5) review environmental impact statements;
- 6) recommend additional procedural guidelines to further identify and mitigate adverse environmental impacts; and
- 7) submit reviews and recommendations to Cabinet to permit, modify, or disallow a proposed undertaking (Manitoba Government, 1976).

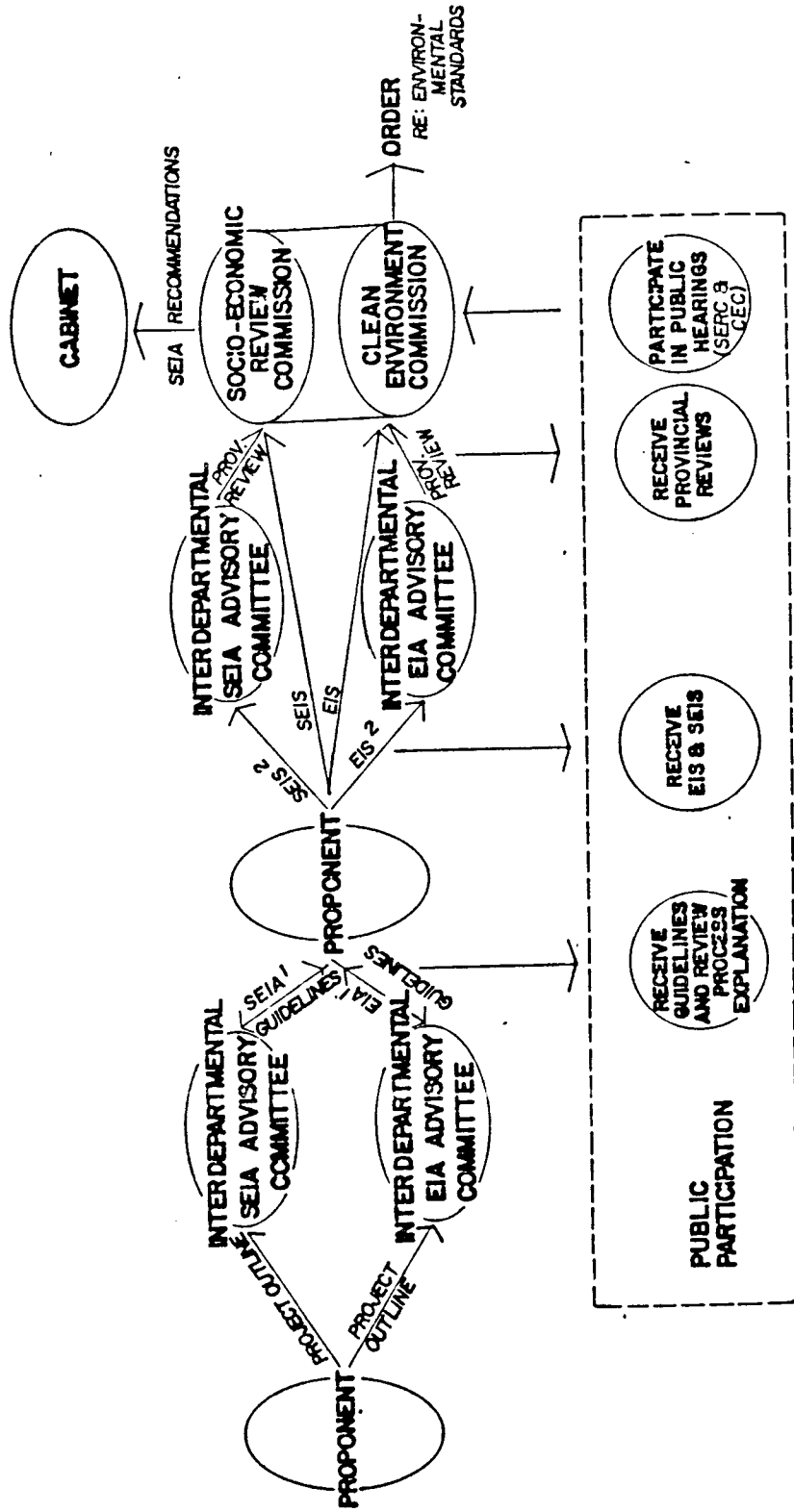
The Environmental Assessment and Review Process consists essentially of the following steps:

- 1) If the proponent determines that the proposed project may have potentially significant environmental impacts, the proponent must prepare a project description and submit it to MEARA (Appendix C outlines project description guidelines);
- 2) Assessment and Review Support Services prepare an Initial Environmental Evaluation (IEE) for MEARA of the proposed project. An IEE contains either suggests mitigating measures, a recommendation that an Environmental Impact Assessment is required, or a recommendation that the project should proceed as proposed;

- 3) MEARA reviews the IEE and makes recommendations to the Minister (based on information received from the Support Services) that an EIA is not required and that the project may proceed; recommends the need for an EIA; or the need for mitigating measures;
- 4) The Minister makes the final decision based on MEARA's recommendations and informs the proponent;
- 5) Proponent prepares the EIA (if necessary) and submits it to MEARA for review (Appendix D outlines the guidelines);
- 6) MEARA reviews the EIA and submits its recommendations to the Minister;
- 7) The Minister may give public notice of the receipt of the EIA, preparation of MEARA's review, and the location where the EIA and its review may be inspected by the public;
- 8) The Minister may initiate (after the receipt of the EIA or at any point earlier) public hearings on the EIA; and
- 9) Cabinet decides to approve the project, with or without modifications, or reject the project (Guide, 1982).

The assessment and review process that was developed to assess the Alcan smelter proposal differed from the conventional Environmental Assessment and Review Process.

Figure 1. Alcan Smelter Review Process



- 1 EIA IS THE ENVIRONMENTAL IMPACT ASSESSMENT
- SEIA IS THE SOCIO-ECONOMIC IMPACT ASSESSMENT
- 2 EIS IS THE ENVIRONMENTAL IMPACT STATEMENT
- SEIS IS THE SOCIO-ECONOMIC IMPACT STATEMENT



Alcan was required to prepare an Environmental Impact Assessment (EIA) and a Socio-Economic Impact Assessment (SEIA). The EIA was to assess the potential impact of the project on the bio-physical environment (that is, the air, water, soil, wildlife and vegetation) while the SEIA would relate the bio-physical impacts to impacts on people's lives as well as examining other potential impacts on individuals and communities.

Figure 1 is simplified representation of the Alcan Environmental Assessment and Review Process. The major steps of the process are:

- 1) Alcan submits a project description or outline to the Inter-departmental SEIA and EIA advisory committees;
- 2) These committees issue guidelines for the preparation of environmental and socio-economic impact statements by the proponent;
- 3) Public receives guidelines and review process explanation;
- 4) Proponent prepares EIS and SEIS according to guidelines; Proponent is encouraged to hold public meetings so that the public's opinions and concerns are incorporated into the final EIS and SEIS;

- 5) Completed Impact Statements are forwarded to government Inter-Departmental SEIA and EIA Advisory Committees; the public also receives a copy of completed statements;
- 6) Advisory Committees review impact statements - copy of provincial review sent to Socio-Economic Review Commission (SERC) and the Clean Environment Commission (CEC) for public hearings; public also receives copy of provincial review;
- 7) Public hearings are held by the Socio-Economic Review Commission and the Clean Environment Commission. SEIA recommendations made by the SERC to Cabinet who makes the final decision; CEC issues environmental standards that proponent must follow if project is allowed to proceed; the public is encouraged to participate in public hearings;
- 8) Cabinet makes final decision as to whether project is permitted; is permitted with modifications; or is rejected.

The Alcan review process provided for public participation as a fundamental component. It was intended that the public would be fully informed about the review process that was occurring and what role the government had in the process, and to ensure that the public would have the opportunity to participate in the process.

Two sets of guidelines were drawn up (one for socio-economic impacts and one for environmental impacts) for preparation of two separate impact assessment statements. The impact statements were to be reviewed by different Advisory Committees, and public hearings were to be held at the end of the process to ensure public involvement and to ensure that all aspects of the project had been considered. Socio-economic impacts were to be considered by a "Socio-Economic Review Commission" (SERC) (which had not been set up at the time of the review) and the Clean Environment Commission (CEC) was to hear environmental impacts. These hearing tribunals would make recommendations to Cabinet who would make the final decision. By separating the socio-economic and environmental impacts, the Manitoba government hoped that all aspects of the proposed project would be thoroughly considered.

The success of the proposed Provincial Environmental Assessment and Review Process developed for Alcan (in particular, and megaprojects, in general) is unknown as the assessment was not completed prior to Alcan withdrawing the aluminum smelter proposal from Manitoba. It must be remembered that the Alcan case was a simplified case.

Chapter 4

REVIEW OF PUBLIC PARTICIPATION LITERATURE

This chapter includes a review of currently available literature on public participation. The purpose of this part of the literature review is to arrive at criteria for assessing an Environmental Assessment and Review Process. The rationale for public participation, as well as approaches and methods are examined and provide the basis for the formation of the criteria.

4.1 Rationale for Public Participation - Advantages and Disadvantages

Public participation according to the U.N. Conference on Habitat (Sadler, Volume 11, 1978) is defined as the "dynamic incorporation of the people in the social, economic, and political life of a country...". This definition is further elaborated on by Elder (1975) to include: "...not only efforts to convey information, but public participation implies education to allow citizens, as well as specialists to play a role in evaluating the economic, technical, and administrative consequences of measures under consideration".

4.1.1 Advantages of Public Participation

- 1) Specialists from industry or government seldom have all the knowledge and experience that is required for responsible

decision-making. In the past, failure to identify concerns of the public has often resulted in poor planning and decision-making (Maurer, 1979; Sewell and O'Riordan, 1976).

- 2) Public participation enables those affected by a proposed activity or decision to participate in the process before the final decision is made. More often, the public will accept the final decision if they have had a chance to participate in the decision-making process (Maurer, 1979).
- 3) The agency is given an opportunity to assess public views more accurately; also helps to inform the public of what the problems are and what alternatives might be considered in a search for solutions (Sewell and Burton, 1974).
- 4) Public participation usually provides for more responsible government as the gap which grows between politicians and the public from one election to the next is bridged. A linkage is built between the public and the bureaucracy so that government agencies are no longer distant from those they are supposed to serve. "The public service regains its true meaning" (Connor, 1974).
- 5) Public participation will result in more responsible and responsive citizens. No longer will it be possible for the public to simply leave it up to the decision-makers and then decry their decision after the fact. Citizens have to shoulder their share of difficult decisions rather than leave government to make all decisions and face the opposition afterwards (Canter, 1977).

Often it is the case that being able to participate in the decision-making process will be as satisfactory or rewarding as having the decision being made in one's favour (Sewell and Phillips, 1979).

#### 4.1.2 Disadvantages of Public Participation

Several disadvantages of public participation are expressed in the literature on this subject. These include:

- 1) It is often expensive and time consuming (especially in terms of large scale projects such as pipelines, airports, etc.), (Canter, 1977).
- 2) Those who participate are often not representative of the general public, nor do they always hold the same view. Those that participate are usually the more vocal, better educated and motivated persons in society. Public participation may serve to reinforce or enhance this division (Maurer, 1979; Sewell and O'Riordan, 1976).
- 3) Public participation may result in confusion of the issues, since many new perspectives may be introduced, erroneous information is often received resulting from the lack of knowledge on the subject on the part of the participant (Canter, 1977).

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- 4) The process may result in short-term, short-sighted and piece-meal planning rather than long term, more thought-out decision-making (Maurer, 1979).
- 5) Public participation does not necessarily result in better government. Historical trends in the United States have shown that to make government more accessible to public influence will not necessarily make it more humane or responsible (Dye & Zeigler, in Wengert, 1976). (Even though this was originally intended to apply to the American situation, it seems just as applicable to the Canadian situation).

#### 4.2 Approaches to Public Participation

Four broad approaches to public participation are outlined by Lang and Armour (1980). These are:

- 1) INFORMATION FEEDBACK: involves giving people information on their environment and changes proposed to it and seeking responses from them. Two kinds of information can be identified: processed - from statistics, studies and books; and personal - from first-hand experience with the environment in question. The public tends to have more of the second and less of the first, while for decision-makers the opposite is generally

true. Both types of information are necessary for decision-making.

- 2) CONSULTATION: refers to planners and other officials meeting with individuals and groups in an organized way for the purpose of increasing participation in planning and decision-making. Consultation is important when the issue is perceived differently from the standpoint of the implementing agency than from the standpoint of the citizen.
- 3) JOINT PLANNING: is a process where citizens and other interested groups on one hand, and planners and industry on the other, become partners in designing the planning process, formulating the plan, and solving problems that arise along the way. Final decisions on adopting and implementing the plan remain with others.
- 4) DELEGATED AUTHORITY: transfers some or all of the authority and responsibility of the initiating agency to citizen-controlled groups to conduct the planning and/or undertake management. Delegated authority applies to local situations with a significant amount of self-help involved, where appropriate expertise is available, where administration can be entrusted to an organized responsible group of users; where openness can be



ensured and accountability clearly established;  
and where performance can be regularly evaluated.

The principle weakness of the foregoing is the model's assumption that citizens and the public will identify and take advantage of the participative opportunities available.

#### 4.3 Methods of Public Participation

Several methods of public participation are cited in the literature on this subject. Instead of discussing all of the techniques available, the two most common methods - public hearings and public meetings (both proposed for the Alcan smelter review process) will be discussed as well as a brief description of other forms that public participation can take.

##### 4.3.1 Public Hearings

There are two common forms of public participation often used in the decision-making process. The first of these is public hearings. Public hearings take on a wide variety of forms from formal, quasijudicial proceedings to very informal hearings or meetings. Most often hearings are very formalized. When significant developments are being considered, public hearings provide an opportunity for all those directly and indirectly affected to voice their concerns. Public hearings are also applicable to situations in which changes are being considered in administrative standards, as the concerned interests are given an opportunity to express themselves (Farrell).

There are several advantages and disadvantages or constraints associated with the practice of holding public hearings. Advantages include: public hearings are relatively inexpensive to hold; people attending are generally well-informed of the issues at hand; the process allows for some degree of interaction between the public and decision-makers or planners; and allows for an organized and planned formal information/feedback hearing.

The disadvantages of public hearings far outnumber the advantages. The major constraint of public hearings is that people attending may not be representative of the range of people who are potentially affected. Other disadvantages include: high visibility may prevent certain individuals from expressing themselves, who otherwise would, due to a real or imagined fear that they may be personally threatened; requires a significant time commitment; attendance is often affected by distance barriers; communication often ends up being one way; people generally feel that public involvement occurs after decisions have been made; and public hearings often tend to develop into or adopt a format of adversary confrontation (Farrell).

#### 4.3.2 Public Meetings

Public meetings are another common form of public involvement. Public meetings are generally much less formal than hearings and provide a more relaxed atmosphere for

participation. Public meetings are sessions where the general public and agencies or government can interact, and include a focus on question and answer. Much information must be distributed before hand in order for the public to contribute effectively in the meeting. In small, rural communities, the public meeting remains a viable forum for community concern and problem solving (Connor, in Sadler, Volume I, 1977).

There are a number of disadvantages associated with public meetings. Public meetings seem to generate 'more heat than light' into the issue at hand. Often the public is not invited to participate until after the issues have developed a high level of anxiety among members of the community (Connor, in Sadler, Volume I, 1977). Public meetings require a significant time commitment on the part of the public. The public is expected to participate, not at their own convenience, but at a time and location specified by the agency or government. Most of those who attend the public meetings have a vested interest in the issue and have something to say, yet many of them are unable to participate because agency presentations and special interest groups monopolize the question period and often intimidate more moderate persons. (These problems are also associated with public hearings).

Several steps can be taken to overcome many of the problems associated with public meetings. Information can be distributed well in advance; an agenda for the meeting can be developed and followed; and a report summarizing the events and

the results of the meeting can be made available to inform the public of what the agency heard at the meeting.

#### 4.3.3 Other Forms of Public Participation

Usually the objectives of public hearings and meetings can be accomplished by some other means, or a combination of techniques including such methods as open houses, workshops and resource centers. These methods of public involvement generally foster a more effective exchange of ideas and concerns between various segments of the public, planners, and politicians in a convenient and comfortable manner. The informality of these techniques allows for better interaction between the public and agency than is usually obtained at public meetings or public hearings. The agency is able to answer individual concerns and able to obtain an idea of the public's view of the issue at hand. Open houses and resource centers enable a large portion of the public to become more fully aware and more fully involved in the issues confronting them at a time that is convenient for them. The only major disadvantage of these methods is the large costs involved in the provision of materials and staff.

#### 4.4 Summary

The trend in the last decade has been towards more participation in the decision-making process. This move forward has been helped by legislation enabling and providing

for a greater degree of participation; higher education levels; greater co-ordination and planning; and a growing concern over the need to preserve our environment. Public participation is not likely to be more effective in the future unless the reasons for traditional inequalities limiting it are corrected (such as status, wealth and access to information). Bregha (in Sadler, Volume I, 1977) believes that public participation will prosper in Canada only in a more egalitarian society that puts a higher value on co-operation rather than on competition. Ultimately, he states, public participation will depend on the quality of the public--"we will get what we deserve!".

#### 4.5 Conclusions and Criteria

From the foregoing review of related literature, a number of philosophies on public participation continue to appear. These reoccurring philosophies provide the basis for criteria for the assessment of public participation in an assessment process.

##### 4.5.1 Two-way Communication Flow

An attempt must be made by decision-makers (industry, government) and the public (individuals, interest groups) to establish a two-way communication flow, so that ideas flow from the decision-makers to the public and the public provides constructive feedback to the planners.

### Criteria #1

There should be vertical two-way communication - specialists, industry and government must communicate with interest groups and individual persons and vice versa. Otherwise, if public input is ignored, confrontations may arise which often delay implementation or alter completely the original intention of a project (Owen in EIA in Canada: Processes and Approaches, 1977).

#### 4.5.2 Information of Project

Related to Criteria #1 is the public's right to information from both government and industry on the proposed project. Often, the general public does not have sufficient information on the project to participate adequately and effectively in the assessment process.

### Criteria #2

The public requires a flow of information from both government and industry on the proposed project. The public also requires information on EIA's (their purpose and process); the role of the public in the assessment process; and dissemination of information on the study, the progress of the study, and any potential adverse or positive impacts.

#### 4.5.3 Public Hearings

Public hearings often become a confrontation between

the public and industry and government, as the public perceives the hearings to be held after the final decision on the proposed project has already been reached.

### Criteria #3

Public hearings should be held prior to any final commitment being made. This would allow for the public to be involved in the decision-making process and have their opinions and views incorporated into the process, ensuring greater accountability in government (Connor, 1974).

#### 4.5.4 Immediate Involvement of Public

The public is often involved in the decision-making process after the final decision has been made. The public is more likely to reject a decision if they have not been allowed to participate in the decision-making process.

### Criteria #4

The public should be involved immediately from the start of the assessment process. The public should be involved in the preparation of the EIA guidelines, and in the completion and review of the EIA statement, as perceptions of the public often differ from that of the government, industry or specialists.

## Chapter 5

### REVIEW OF OTHER ASSESSMENT PROCESSES

This chapter reviews Environmental Assessment and Review Processes in Quebec, Saskatchewan, Alberta, and the Manitoba Megaproject Process to assess the public participation components in these systems. From the review of these provinces's systems, additional criteria are developed, (in addition to those developed in Chapter 4) that provide the basis for assessing public participation in a review process.

#### 5.1 Manitoba's Megaproject Process

The Environmental Assessment and Review Process that was developed to assess the Alcan aluminum smelter proposal differed from the usual assessment process used in Manitoba. The "megaproject" process intended to provide for a greater degree of public participation than is usually found in EARP. These means were to be met by:

- 1) the EIA and SEIA guidelines were public documents, freely available;
- 2) a full explanation of the government's review of the Alcan project was to be widely publicized;
- 3) the EIA and SEIA were to be publically released as soon as they were filed with the province;
- 4) the Provincial reviews of the EIA and SEIA were to be released to the public as soon as completed; and



- 5) public hearings were to be held on all environmental and socio-economic aspects of the project.

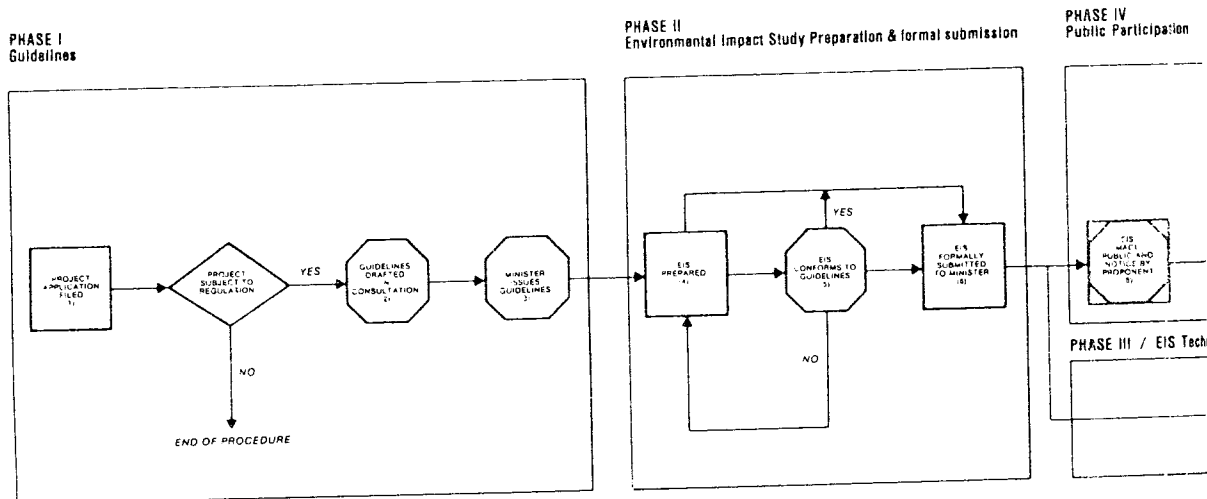
In the conventional environmental assessment and review process, there is much less provision for public input. Public involvement at any phase in the Manitoba Environmental Assessment and Review Process, is left to the discretion of the Environmental Assessment and Review Agency and ultimately, the Minister of Environment. Public input is, however, generally considered by MEARA prior to formal approval of the proposal.

## 5.2 Quebec's Process

Quebec's Environmental Assessment and Review Procedure has a legal basis provided by the Environmental Quality Act (L.R.Q., c. Q-2). This Act was amended in 1978 to provide for, among other things, the creation of the Bureau d'Audiences Publiques sur l'Environnement, responsible primarily for holding public hearings in the case of project proposals subject to the Review Procedure.

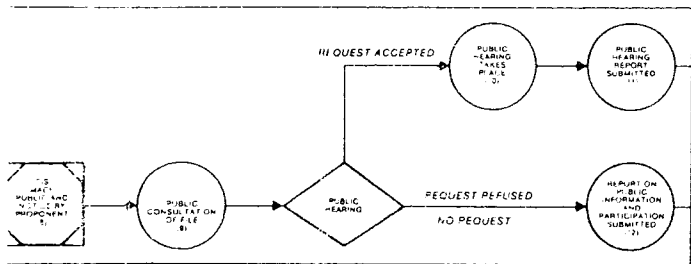
Quebec's process (See Figure II) provides for a much greater degree of public participation than does Manitoba's process. The assessment and review procedure in Quebec provides an information, consultation, and public hearing phase to enable the public to participate in the decision-making process. The purpose in allowing the public to participate is to enable the affected parties an opportunity to obtain

Figure 11. Quebec's Environmental Assessment & Review Process  
PROCEDURE FOR ENVIRONMENTAL IMPACT ASSESSMENT AND REVIEW



\*Figures show the steps described in the document which describes the procedure

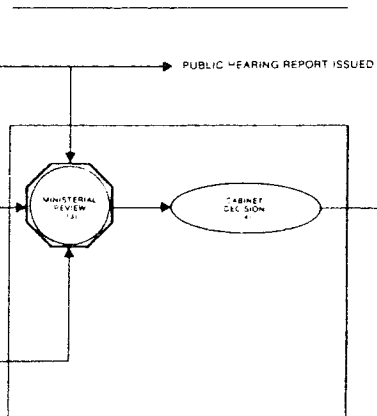
ISE IV  
Public Participation



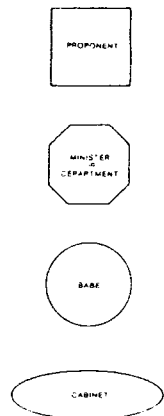
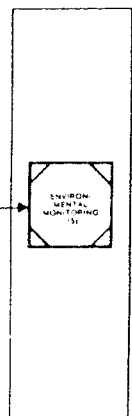
ISE III / EIS Technical Review



PHASE V  
Decision



PHASE VI  
Monitoring



technical information, express their views, and make their concerns known. Involving the public allows the decision-maker or agency an opportunity to ascertain that there are no unexpected consequences of the undertaking of a particular project and therefore decreasing or avoiding the expense of social and environmental corrective measures in the future.

Public participation in the process consists of five stages:

- Stage 8 - Information is provided by the Minister of the Environment and the project initiator (public notification).
- Stage 9 - Consultation by the public of the application for a certificate of authorization and application for a public hearing.
- Stage 10 - Public hearings (if held).
- Stage 11 - Submission of the report on the public hearing.
- Stage 12 - Submission of the report on public information and consultation.

In summary, the Quebec EARP guarantees the public access to any technical information regarding the application for a certificate of authority and the right to examine the EIA statement. If the general public feels that the EIA statement does not adequately deal with all of the environmental issues, they may request that the Minister hold a public meeting so that the public's views can be expressed. These viewpoints are then taken into consideration in the final decision (Guide 1982).

### 5.3 Alberta's Process

The legislative base for Alberta's Environmental Assessment and Review Process is contained in the Land Surface Conservation and Reclamation Act. The guidelines for assessment and review emphasize public involvement. The Alberta document states that proponents should attempt to include the affected party into the EIA process. The purpose of public participation is to provide for adequate exchange of information to allow identification of potential impacts and concerns; to provide for adequate assessment of the community significance; and to ensure evaluation from the public perspective of alternatives and potential gains and losses involved in proceeding with a proposed development (Guide, 1982).

The proponent is encouraged to hold public meetings and seminars at the earliest date and incorporate the results from public participation into the final Environmental Impact Statement. When the assessment is completed, the Alberta guidelines stress that the proponent must ensure that the public has an adequate opportunity to review the overall implications. The public must be given an opportunity to indicate whether or not the proposal is within the limits of public acceptance.

### 5.4 Saskatchewan's Process

The Saskatchewan Environmental Assessment and Review

Process places even more emphasis on public involvement than the Manitoba or Alberta processes. Saskatchewan adopted a policy for environmental impact assessment in 1976. Assessment legislation, the Environmental Assessment Act was passed in 1980. Some of the changes that occurred involved public participation:

- 1) Technical review comments are to be made available for public review concurrently with the environmental impact statement. A minimum 30 day public review period is required; and
- 2) Grants may be made available for interest groups to participate in the assessment process.

The public affected by a development should participate in the identification, analysis, and evaluation of the impacts, and in the planning of mitigation and enhancement measures to minimize any negative effects. From the start of the process, the public is given an opportunity to participate. The Saskatchewan document points out that the public should participate early enough in the assessment process so that their comments, interests, and recommendations may be considered during the preparation of the final EIA. Once an acceptable EIA is received by Saskatchewan Environment, it then gives public notice of receipt of the EIS and places where it may be inspected. The public is asked to submit any comments or recommendations to Saskatchewan Environment. If, as a result of the public review, significant public concern is

expressed, and if, in the opinion of the Minister of Environment, the project has environmental concerns, the Minister can appoint a Board of Inquiry to review the EIA Statement.

#### 5.5 Summary

From this brief examination of the assessment and review process in Manitoba, Quebec, Alberta and Saskatchewan, it is evident that Manitoba's EARP places less emphasis on citizen participation in the Environmental Assessment and Review Process. The review process that was developed to assess the Alcan smelter proposal did, however, provide for a greater degree of public participation than is the usual case.

Manitoba has no legislative base for its Environmental Assessment and Review Process and this limits project review to proposed government projects or crown corporation proposals or private industry that desires to do so.

Manitoba's definition of environment is also too narrowly defined to encourage or warrant much public involvement. The definition of Environment, according to Manitoba legislation, is limited to "air, water, and soil". Thus an assessment would be required for any project that proposes to significantly impact upon the "air, water, or soil". The public, therefore, would only participate in projects that would have impacts as defined above, with little concern or attention given to the socio-economic environment.

Although the Alcan Review Process was to provide for public involvement, this is generally not the case. Manitoba does not guarantee the public the right to participate in the review process of projects which may have potentially significant environmental impacts. Involvement is left up to the discretion of the Minister of Environment. Classic democratic principles hold that those who are affected by a project should have an opportunity to participate in the decision-making process concerning the project (Maurer, 1979). The problem to be resolved is whether Manitoba should have a review process that guarantees the public a right to participate in those decisions that ultimately affect their lives.

## 5.6 Conclusions

Several philosophies underly the Environmental Assessment and Review Processes of Quebec, Alberta and Saskatchewan and the process that was formulated for the Alcan smelter proposal. These provide a portion of the criteria that are later used to assess public participation in a review process.

### 5.6.1 Funds for Interest Groups

The Saskatchewan government provides grants to interest groups enabling them to participate in the assessment process. Often interest groups lack sufficient economic resources that enable them to participate effectively.



Criteria #5

Public funding should be made available to legitimate interest groups to help cover costs of research and participation in and holding of meetings.

5.6.2 Explanation of Public's Right to Participate

An explanation on the rights of the public to participate in the review process is required. This should ideally include:

- a) the extent to which opportunities exist that make it possible for those who wish to participate to do so;
- b) extent to which the public are aware of the opportunities to participate;
- c) extent to which the public is made and kept informed or aware of the events; and
- d) extent to which the proponents and government respond to the public's input.

Criteria #6

The public should ideally be given an explanation of the opportunities that they have to participate in the environmental assessment and review process.

## Chapter 6

### ATTITUDE SURVEY RESULTS

#### 6.1 Introduction

This chapter examines the results that were obtained in the interviews conducted concerning the Alcan aluminum smelter proposal and review. This serves to add to the basis for understanding and evaluating the Alcan proposal review procedure.

In the environmental assessment and review of a major project, three parties are usually involved: the government, the industry or proponent, and the public and/or interested citizen groups. The review of the Alcan aluminum smelter proposal appeared, at the surface, to involve only two of these - the industry (in this case, Alcan) and the Manitoba public. The government played a much less obvious role in the entire process.

#### 6.2 Survey Population

For the purposes of examining the attitudes and perceptions of the Manitoba public towards the Alcan smelter review process, thirty persons were interviewed. This included three employees of the Manitoba government; one employee of the federal government; three employees of the Aluminum Company of Canada Ltd; two people from Winnipeg (who had a substantial interest in the proposal); and twenty-one people from the

Rockwood area. Of the twenty-two people from the Rockwood area, six people were from inside the buffer zone that Alcan had allowed to surround the proposed site; and three were from municipal government [including the Mayors (at that time) of the Towns of Stonewall and Teulon, and the Reeve of Rockwood].

### 6.3 The Rockwood Smelter Study Group's Role

Several citizen groups were formed immediately following Alcan's announcement of its intention to construct an aluminum smelter in Manitoba. One of the better known groups was the Rockwood Smelter Study Group (RSSG). The RSSG was composed of concerned, interested residents of the Balmoral area that met to discuss the possible ramifications an aluminum industry could have on the area. The RSSG planned to be a public study group, open to all Manitobans with the primary purpose of obtaining information and expertise on the Alcan issue. From the resources available, the group would determine for itself the beneficial and adverse effects on the immediate area, and the province, resulting from a aluminum smelter.

The initial objective of the Rockwood Smelter Study Group was to conduct unbiased, impartial research into the subject area of aluminum smelters and to decide whether or not to support the smelter in the area. The intentions of the group were honorable. It soon became apparent, however, that some members of the RSSG were biased against Alcan and the proposed smelter. Once this was realized by Alcan and other

members of the community, the RSSG lost credibility as an impartial study group and was labelled as "anti-Alcan".

The Rockwood Smelter Study Group did however serve an important role in the public participation component of the Alcan smelter proposal review. The group held meetings, sponsored speakers, and offered the public a wealth of information on the subject of aluminum smelters.

#### 6.4 Manitoba Government's Role

The Manitoba government played a less visible role in the assessment process. The only involvement that government appeared to have was in the preparation of the socio-economic and environmental guidelines for the proponent. The government had planned to conduct a full review of the Alcan aluminum smelter proposal including public hearings, but the project was postponed before the Manitoba government could proceed this far.

The Manitoba government did not hold or participate (to the respondents' knowledge) in any public meetings held on the Alcan smelter proposal. Representatives from the government were present at a few public debates sponsored, in part, by the Manitoba Naturalist Society, but this is believed to be the extent of their participation. Alcan and the Rockwood Smelter Study Group organized and chaired the majority of the meetings held.

Five, of the thirty people interviewed, felt that the government didn't participate in the meetings because they

didn't have enough time, and had the process continued, government would have become involved in public meetings and hearings. These people felt that government should remain unbiased and limit their participation in these meetings. Nineteen respondents believed the government didn't participate in the meetings because they didn't know what they were doing, nor what their role should be in the process. These people also were of the opinion that the government should have been more actively involved in order for the public to see what stand the government was taking on the issue. The public generally believes that when government is involved in a controversial environmental issue such as Alcan, all public concerns and views will be considered, and the government would sort out what is right or wrong. The people of Manitoba were not given this assurance. The remainder of the respondents were undecided as what role the government should have played in these meetings.

Three of thirty respondents felt the government was right in not participating in the process prior to the public hearings being held as it would have showed an apparent bias. The majority of the other respondents (twenty people) were of the opinion that the government could have participated in the public meetings in an impartial, unbiased manner, in much the same manner that Alcan had conducted itself.

#### 6.5 Alcan's Role

Alcan, in contrast to the Manitoba government, held several public meetings and open houses; brought in speakers and experts; and sponsored, in part, a tour for a group of area residents, to see the Grande Baie Smelter in Quebec. All but one respondent felt that Alcan performed their role in a professional manner. Alcan was perceived as being generally impartial and unbiased, and sought to provide the public with all information (both positive and negative) that it had available. One respondent commented that he obtained, from Alcan, considerable information on the negative environmental impacts associated with aluminum smelters. Although Alcan had an obvious bias and was trying to sell itself to the area residents, they conducted themselves in a professional and seemingly unbiased, impartial manner.

#### 6.6 Assessment of Approach

Although twenty respondents (of twenty-one people who responded to this question) felt they were given ample opportunity to participate in public meetings and to voice their opinions and concerns, only four of the twenty people believed that the way in which public meetings were held was the best method (ie. by the industry or proponent, and interest groups). The other sixteen respondents felt that public meetings should be jointly held by three groups - the government, the proponent and interest groups.

Five respondents knew exactly the environmental assessment and review process that government planned to implement to review the Alcan smelter proposal (three of the five respondents were from government). Ten of the thirty respondents felt that the government themselves were not sure what they were to do. Twenty-one people knew that there was to be a review of the completed impact statements and public hearings, but none of these people were confident that this was to be the process. Eight respondents were of the opinion that the public hearings were to be only a formality, as a decision had already been made by the Conservative Government. These people believed that public hearings should be held in advance of any final decisions being made. Only after the hearings and recommendations made by the hearing tribunal, should a decision be reached.

Six of thirty respondents felt that a more effective hearing process was required. They believed the role of the Clean Environment Commission, which currently holds hearings on environmental matters, should be strengthened - giving them the mandate to handle both socio-economic and environmental hearings; and making their recommendations and conclusions final.

All of the twenty-one people who responded to this question felt that they were able to receive a sufficient amount of information on the subject of Alcan and aluminum smelters in order to reach a decision on whether or not to

support a smelter in the area. Although most information was from Alcan (with lesser amounts from the RSSG), information on both the positive and negative aspects of aluminum smelting were available. Fourteen of the twenty-one respondents felt the Manitoba government should have supplied the public with additional information, especially on the Environmental Assessment and Review Process to be followed; the government's stand on the project; and on the hydro agreement.

Of the twenty-one people who responded to the question regarding impacts, only six people felt that the environmental impacts a smelter could generate were not made clear. Five, of these twenty-one people, believed that there would be no negative environmental impacts whatsoever; six people were of the opinion that any adverse environmental effects would be confined to the buffer area, with little or no damage to areas outside this zone. An area that a number of respondents felt that more information was required was on the socio-economic effects such a large industry could have on the area. Only seven people (of twenty-one respondents) considered the socio-economic effects or impacts that an aluminum smelter would generate (in addition to environmental impacts) when asked what impacts such an industry could have. The majority of the respondents (thirteen of twenty-one) believed that any negative impacts a smelter would have on the Rockwood area would be far out-weighted by the positive impacts of economic growth and development.



Six people interviewed (of twenty-one) considered moving if Alcan had proceeded with plans to construct an aluminum smelter in the Balmoral area. These people believed that the negative environmental and socio-economic impacts would, by far, exceed any possible benefits from an aluminum smelter. Five of the six people did not earn their livings in the area (they either worked in Winnipeg or out of the Rockwood area). The other person farmed just outside of the buffer zone and felt that the environment would be severely degraded for agriculture.

A trend seemed to appear to the anti-Alcan sentiments present in the Balmoral area. Those who fervently opposed the idea of an aluminum smelter in Balmoral made their livings outside of the community and were not economically dependent upon the local area. These people had more to lose aesthetically by having an aluminum smelter built in the area. Those who were supportive of Alcan were dependent upon the local area for their livelihood and saw Alcan benefitting the area economically in terms of jobs, transportation and spin-off benefits.

Twenty six (of twenty-eight respondents) believed that the economic conditions in the world and its ramifications on the aluminum industry was in part the reason for Alcan's decision to postpone construction. However, eleven of these people were of the opinion that the Manitoba government contributed to Alcan's decision to leave the province. They

believed that if the present economic conditions had been better Alcan still would not have constructed an aluminum smelter because of the government's failure to provide a hydro agreement.

Some social fragmentation did occur in the community as a result of the Alcan smelter proposal, but most respondents agreed that the problem was not as great as what it might have been. Fourteen of twenty-one people who responded to this question felt that the effects of any rifts had worn off, but that evidence of the problem did occasionally appear. Most of the problems that did occur and are still evident were not between anti- and pro-Alcan people, but between the less moderate and more moderate members of the anti-Alcan group, especially within the Rockwood Smelter Study Group. Some members of the group had differing opinions as to how the group should have held meetings and what stand they should be taking on the issue. The RSSG was initially formed as an independent study group but it was soon apparent that there was a conflict of interest within the group. This led to splits among members of the group that are still present today. As one person stated, "In any area there is bound to be rifts between people, even without something like Alcan to set it off".

#### 6.7 Review of Alcan Assessment Process

If Alcan had continued with their plans to construct an aluminum smelter in Manitoba, the process for Environmental

Assessment and Review was to be a modified version of the current Environmental Assessment and Review Process in Manitoba. The Manitoba government believed that this process would be suitable for the review of all such megaprojects, and would encompass all possible environmental and socio-economic ramifications.

Some weaknesses in the Alcan review process were observed by the interview respondents. One important requisite where the process was lacking is in the area of legislation. The Manitoba EARP operates under the direction of government policy requiring only provincial government projects to be subject to the assessment process. Alcan did not have to submit itself to the Manitoba process of environmental assessment but it was in their best interests to do so. Seven people interviewed felt that the Manitoba Environmental Assessment and Review Process should have a legislative basis requiring all major proposed projects to be reviewed (subject to the Minister's discretion). Included in this legislation should be a clause requiring that public participation be a vital and necessary component of any review.

The existence of two separate Interdepartmental Advisory Committees (one for SEIA and one for EIA) that requires the preparation of two sets of guidelines, completion of two impact statements, and two public hearings was thought to be unnecessary and insufficient. It is often difficult to distinguish and clearly separate socio-economic and

environmental impacts as the two often overlap and influence each other. Formal public hearings, in the best conditions, are often confusing, intimidating, and stifling, and to have segregated hearings would make the situation worse. People would have found it difficult to participate effectively in these hearings and the government would have been blamed for the confusion that could have resulted. What is required is a unified process for the review of both socio-economic and environmental impacts by one agency or body.

#### 6.8 Analysis of the Alcan Smelter Review Process

Using the criteria for assessing public participation in an assessment and review process that were developed in sections 4.5 and 5.6, the Alcan aluminum smelter review process was analyzed. Once more, the criteria developed for assessing public participation in a review process are:

- 1) An explanation is required concerning on the rights of the public to participate in the review process. This should include:
  - a) the extent to which opportunities exist that make it possible for those who wish to participate to do so;
  - b) the extent to which the public is made aware of the opportunities to participate;
  - c) the extent to which the public is made aware and kept informed of the events;

- d) the extent to which the proponents and government respond to the public's input.
- 2) There should be vertical two way communication - specialists, industry and government must communicate with interest groups and individual persons, and vice versa. Otherwise, if public input is ignored, confrontations can arise which often delay implementation or alter completely the original intention of a project.
  - 3) A flow of information is required to the public from both government and industry on the proposed project. This includes education of the public on EIA'S, (their purpose, process, and the public's role); and dissemination of information on the study (the progress of the study and any potential adverse or positive impacts).
  - 4) The public should be involved immediately from the start of the process. The public should be involved in the preparation of EIA guidelines, and in the completion and review of the EIA Statement because perceptions among the public often differ from those of the government, industry or specialists.
  - 5) Public hearings should be held prior to any final committment being made. This would allow for the public to be involved in the decision-making

process and have their opinions and views incorporated into this process. This makes for greater accountability in government.

- 6) Public funding should be made available to legitimate interest groups to help cover costs of research, participating in and holding meetings, etc.

The following is a critique of the Alcan (megaproject) assessment and review process:

- 1) No explanation was given to the public outlining their rights to participate in the process. Lacking was an outline of the opportunities to participate; information as to the series of events that were occurring; and whether or not government and industry were responding to the public input.
- 2) Alcan established a two-way communication flow between their specialists and officials and the Manitoba public. They informed the public of what they intended to do, and of impacts (both positive and negative) of the development. The government did not establish the same sort of communication flow and the majority of persons interviewed felt that this was required.
- 3) Alcan provided the public with a great deal of information on the subject of aluminum smelters.

This was done through a wide variety of techniques including: newspapers, television, open houses and public meetings. The public received very little information from government on the project, the government's plan for reviewing the project, the government's stand on the project, or the public's role in the review process.

- 4) The public was involved from the start. The EIA guidelines were made available to the public. Alcan also held public meetings and open houses in an attempt to get the public involved in the process. Opportunity was available to the public to participate in the assessment process.
- 5) Public hearings were scheduled to be held but the process never reached this stage. Many people interviewed felt that public hearings, had they been held, would have been a formality.
- 6) Funding was not available to research groups to carry out their own investigation and hold public meetings. Some members of the RSSG felt that a better study of aluminum smelters could have been done had research funds been available to them.

#### 6.9 Summary and Conclusion

In summary, all persons interviewed (with the exception of one respondent) felt Alcan had done an excellent

job in promoting the company and the project; holding public meetings and open houses; providing the public with information; and a forum for voicing their opinions and concerns. The government should have been more publicly involved in many of these activities but chose to remain, until Alcan left the province, out of any activities. The role that Alcan performed in the aluminum smelter proposal review demonstrated for the Manitoba public the inadequacy of what the Manitoba Government was doing (or not doing) in the review process. Alcan, in fact, took on a larger role in the process than was required of them. However, this was necessary because the government wasn't sure of what they were doing nor of what they should be doing. Because the position of the government was inchoate, Alcan was forced into playing a much greater role than would have been necessary had the Manitoba Government been better organized.



## Chapter 7

### MODEL AND ANALYSIS OF PUBLIC PARTICIPATION

This chapter develops the guidelines the primary participants in a review process (government, industry, and the public) should follow. In addition, on the basis of the conclusions and recommendations drawn from the previous chapters, proposals are advanced for modifying the Environmental Assessment and Review Process in order to integrate both socio-economic and environmental impacts into one broad environmental category.

#### 7.1 Guidelines for Government, Industry, and Public

The following are the ideal guidelines government, the proponent (industry), and the public should follow in an Environmental Assessment and Review Process. These guidelines have been developed from the results of the questionnaires and the review of related literature.

##### 7.1.1 Guidelines for Government

Government, ideally, in an assessment process should be responsible for:

- 1) participating in public meetings, not as a chairperson but as a participant with the proponent and the public;
- 2) acting in an advisory role for the public, providing technical assistance and advice;

- 3) providing the public with information, not only on the proposed project but also on the government review and methods of public participation;
- 4) providing financial assistance to legitimate interest groups in order that they may participate more effectively in the review process. (One of the problems that the RSSG experienced was a lack of funds to carry out a thorough study of aluminum smelters);
- 5) holding public hearings with the hearing tribunal; these public hearings should be held in advance of any commitment being made. Both environmental and socio-economic aspects of the assessment should be covered in the hearing process; and
- 6) maintaining a two-way information flow between the government and the public so that government will be aware of the public's concern and wishes, and the public will be aware of what the government is doing.

#### 7.1.2 Guidelines for Industry

The guidelines that industry or the proponent should follow are:

- 1) participate in public meetings along with government and the public; hold public meetings and open houses in order to incorporate the opinions and concerns of the public into the completed EIA statement;

- 2) provide the public with information concerning the proposed project; this should include both positive and negative impacts the industry could have; the industry should establish a two-way information flow between them and the public;
- 3) complete the EIA statement according to government guidelines;
- 4) attend and participate in public hearings.

### 7.1.3 Guidelines for the Public

The public also has a responsibility in the Environmental Assessment and Review Process. Generally, they should:

- 1) participate in public meetings along with government and industry;
- 2) obtain information and study the project in order to come to their own conclusion about the project;
- 3) obtain information about the government's review process, the public's role in that process, and methods of participation available;
- 4) review EIA guidelines, statements, and the government review, and provide the government and proponent with information on concerns and opinions; and
- 5) make known to government (in advance of the hearings) of intentions to participate in public hearings.

These are ideal guidelines that the government, proponent and public should follow in a review process. It is doubtful that all will be followed, but attempting to follow as many as possible, it is believed that a more effective review process would result.

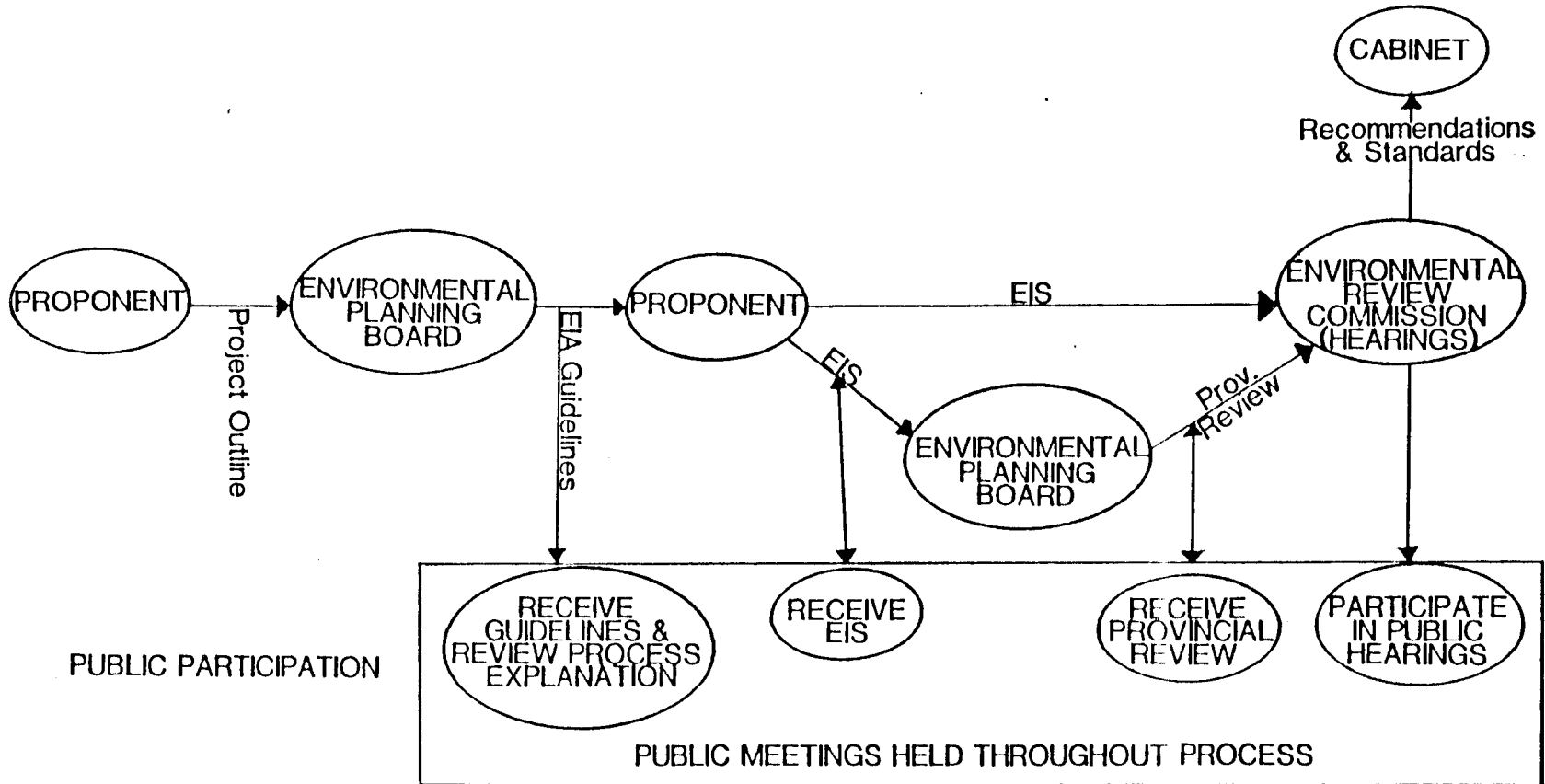
## 7.2 Model of Megaproject Assessment and Review

Although the Alcan Aluminum Smelter review process was to differ from the review process generally employed in the review of proposed projects in Manitoba, some conclusions and recommendations can be drawn about the process based on the analysis of the Alcan smelter review and applied to the Manitoba Megaproject Environmental Assessment and Review Process, as well as the conventional Environmental Assessment and Review Process.

Figure III is a simplified Megaproject Environmental Assessment and Review Process model, modified from the review process formulated for Alcan. The model attempts to integrate both socio-economic and environmental impacts into one broad category in keeping with the definition of environment in Appendix A. The process is basically as follows:

- 1) Proponent prepares a project description or project outline. Environmental Planning Board (EPB) (a "fabricated" board integrating the Interdepartmental SEIA Advisory Committee and Interdepartmental EIA Advisory Committee, composed of members of MEARA and

Figure 111. Modified Environmental Assessment and Review Process



Interdepartmental Planning Board) receives description and decides whether a full EIA is required.

- 2) If an EIA is required the EPB issues assessment guidelines (for both socio-economic and environmental impact assessments), and guidelines for public participation for the proponent. Copy of guidelines and an explanation of the proposed review is available for public examination.
- 3) Proponent completes the EIA statement according to the guidelines issued. Proponent holds public meetings (in conjunction with government and interest groups) in order that public views and concerns are incorporated into the final statement.
- 4) Environmental Planning Board receives a copy of completed environmental impact statement. The EPB reviews document and decides whether any further information is needed. If more information is required, EPB drafts concerns to be completed by the proponent. If not, EPB prepares a EIA statement review for the hearing tribunal and notifies the Minister to arrange for public hearings. Public receives a copy of completed EIA statement and government's review. The public may review and pass comments and concerns to government to be addressed in further study by the proponent or at the public hearings.

- 5) Public hearings are held on both the environmental and socio-economic impacts by one hearing tribunal (in this case the "Environmental Review Commission" a re-enforced Clean Environment Commission). The public is encouraged to participate at the public hearings but must notify the hearing tribunal of the intention to participate prior to the hearing.
- 6) The Environmental Review Commission issues their report and makes recommendations to the Minister who in turn recommends to the Cabinet whether the project is to proceed as planned, proceed with some modification, or if the project is rejected.

In this process, no distinction is made between the "physical" environment and "socio-economic" environment; they are treated and reviewed together - one set of guidelines are prepared, one EIA statement and one set of hearings are held.

This modified Megaproject Environmental Assessment and Review Process would provide for a greater degree of public participation than the megaproject review process developed for the Alcan smelter proposal. It is believed by the author of this report that a combined socio-economic and environmental impact assessment and review would result in less confusion (in terms of separation of socio-economic and environmental impacts) and thus a better process.

## Chapter 8

### CONCLUSIONS AND RECOMMENDATIONS

There is much difficulty in making recommendations as to how to improve or increase the effectiveness of the Manitoba Megaproject Environmental Assessment and Review Process (that was developed to review the Alcan proposal) as much more experience and knowledge in the process and in other processes is required than was possible for the researcher to acquire over the period of summer research. The recommendations that follow, however, are meant to be a guide for possible improvements that could be implemented in the Manitoba Megaproject process (and even in the Manitoba Environmental Assessment and Review Process).

#### 8.1 Conclusions

The environmental assessment and review process that was developed to review the Alcan smelter proposal included considerable potential for public participation. The actual public participation process that occurred in the Alcan aluminum smelter proposal review, happened not because of initiatives on the part of the Manitoba government, but as a result of Alcan initiatives.

Alcan provided the public with a variety of opportunities for participation in the process that was occurring. These opportunities included public meetings, open



houses, information seminars, and the provision of a wealth of information. The Manitoba government, on the other hand, failed to provide similar opportunities for public participation.

Although most of the opportunities for public involvement (some meetings were held by interested citizen groups) were provided by the proponent of the project, there existed several opportunities to participate. The Aluminum Company of Canada Limited should be commended for a job well done.

## 8.2 Recommendations

### 8.2.1 Legislation

Manitoba currently has no legal basis for the Environmental Assessment and Review Process. As a result, only provincial government projects are subject to the Manitoba EARP. What is needed is a legal basis for the process requiring all major proposed projects that may significantly impact upon the environment (both socio-economic and bio-physical) to be subject to the Environmental Assessment and Review Process. A legislative basis for EARP would provide certainty to the Manitoba public that an assessment would be conducted prior to a major project development. All actions or proposals, both private and public, would have to be reviewed prior to implementation. Legislation would also ensure that the public has the opportunity to participate in the

decision-making process; provide a framework for EIA guidelines; and ensure that the proponent (or industry) and government provide the public with information on the proposed development and the assessment and review process that would occur.

Recommendation 1: It is recommended that there be a legislative basis to the Manitoba Environmental Assessment and Review Process.

#### 8.2.2 Definition of Environment

The current definition of environment is too limited. According to the Environmental Assessment and Review Process for Proposed Provincial Projects Guidebook (1976), environment is defined as the "air, water, or soil". This definition excludes any reference to the socio-economic environment. Most people interviewed failed to consider the socio-economic impacts that a project such as Alcan could have. The definition should be expanded to include socio-economic considerations equally with environmental impacts. Thus, environment would include both the social and physical surroundings, encompassing community structure as well as built landscapes and natural resources; encompassing the social, economic and cultural conditions that influence the life of man or a community; and encompassing the physical and biological aspects of the environment.

Recommendation 2: The current definition of environment should be expanded to include socio-economic considerations.

#### 8.2.3 Government Assistance

Several public interest groups were formed, during the time Alcan was in Manitoba, to investigate and study aluminum smelters and their possible impacts. These groups relied heavily on their own financial resources (usually depending on donations from members) to study the information available, holding meetings, and sponsoring special lecturers and speakers. One of these groups, the Rockwood Smelter Study Group, felt a more intensive and in-depth review of aluminum smelters could have occurred had they had more funds and assistance available for research. The Saskatchewan Government and the Manitoba Public Utilities Board have both chosen to follow this route.

Recommendation 3: The government should provide legitimate interest groups with financial resources and technical assistance in order that these groups may conduct their own investigation into the proposed development or project.

#### 8.2.4 Public Education and Information

The Manitoba Government did not provide the public with information concerning the proposed project, the review that was being planned, opportunities available for public

participation, and what the government stand on the project was. Public input was not sought in the formation of the impact assessment guidelines, nor was the public given an opportunity to assess the guidelines once completed.

The Manitoba public should have been provided with information regarding the project, information on the environmental assessment and review process, and opportunities for the public to participate in the review.

Recommendation 4: The Environmental Assessment and Review Process should be clearly defined outlining all opportunities for public involvement; information for the public on the review process; opportunity to participate in the development and review of the EIA guidelines and completed environmental impact statement; and requiring both government and industry to actively encourage participation.

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APPENDIX A  
DEFINITIONS

Environment - refers to both social and physical surroundings.

It encompasses community structure as well as built landscapes and natural resources; encompasses the physical, biological and socio-economic aspect of the environment.

Environmental Impact Assessment (EIA) - is a measurement of the probable change (both positive and negative) in the various socio-economic, biological and physical characteristics of the environment, which may result from a proposed or impending action.

Environmental Impact Statement (EIS) - is a document written in a format specified by the Review Agency which represents a summary of the environmental inventory and the findings of the environmental assessment.

Environment Impact Statement Review (EISR) - is a document produced by the Manitoba Environmental Assessment and Review Agency Board containing the history of events associated with the project; a detailed examination of the vital environmental factors involved, including their major impacts on the social and economic sectors; and recommendations to the Minister. The Agency could recommend that the project be halted, that it proceed as planned, or that it proceed with certain qualifying conditions and terms.

Manitoba Environmental Assessment and Review Agency (MEARA) - is a group of senior civil servants appointed by the Minister of the Environment to administer the Environmental Assessment and Review Process (EARP).

Environmental Assessment and Review Process (EARP) - is a program developed as a result of a Provincial Cabinet Policy to ensure that:

- a) environmental effects are taken into account early in the planning of new government sponsored projects, programs and activities;
- b) environmental assessments are carried out for all projects which may have an adverse effect on the environment before commitments or irrevocable decisions are made; and
- c) the results of these assessments are used in planning, decision-making and implementation.

Proponent - is a government department, crown corporation or private agency that initiates, plans or proposes a project.

Initial Environmental Evaluation (IEE) - is a preliminary review of a project description by MEARA to determine if a full environmental assessment should be required or if minor changes to the project might avoid or mitigate adverse impacts.

Public Participation - the dynamic incorporation of the public in the social, economic and political life of a country designed to convey information, educate citizens to allow them to participate as well as specialists in evaluating the economic, technical and administrative consequences of measures under consideration.

APPENDIX B  
QUESTIONNAIRE

1) AGE:           0 - 18                               40 - 44  
                  19 - 24                               45 - 49  
                  25 - 29                               50 - 54  
                  30 - 34                               55 - 59  
                  35 - 39                               60+

2) OCCUPATION: Please specify.  
(If farmer, please note type)  
(Also note if commuter to Winnipeg, etc.)

3) ADDRESS:  
LEGAL ADDRESS:       \_\_\_\_\_S       \_\_\_\_\_T       \_\_\_\_\_R

4) EDUCATION:  
Please circle highest grade or year completed.  
Grades:   1   2   3   4   5   6   7   8   9   10   11   12  
Business or Trade School:   1   2   3   4  
College:   1   2   3   4  
Graduate School:   1   2   3   4   5   6

5) SEX:  
Male \_\_\_\_\_ Female \_\_\_\_\_

6) LENGTH OF RESIDENCE IN THE R.M. OF ROCKWOOD:  
    0 - 4 years \_\_\_\_\_  
    5 -10 years \_\_\_\_\_  
   11 -15 years \_\_\_\_\_  
   16 + years \_\_\_\_\_  
    All life      \_\_\_\_\_

7) HOW FAR FROM THE PROPOSED ALCAN SITE DO YOU LIVE?

8) ARE YOU AWARE OF THE ALCAN SMELTER PROPOSAL FOR AN ALUMINUM SMELTER IN THE BALMORAL AREA?

YES \_\_\_\_\_ NO \_\_\_\_\_

9) WERE YOU AWARE THAT THE PROVINCIAL GOVERNMENT WAS CONDUCTING A REVIEW OF THE PROJECT?

YES \_\_\_\_\_ NO \_\_\_\_\_

10) WHEN DID YOU FIRST FIND OUT ABOUT ALCAN? (Please give approximate date)

---

11) HOW WERE YOU FIRST MADE AWARE OF THE ALCAN ALUMINUM SMELTER PROPOSAL?

Please check one response

News Media (television, radio, newspaper) \_\_\_\_\_

Mail (from ALCAN) \_\_\_\_\_

(from Provincial Government) \_\_\_\_\_

(from local Government) \_\_\_\_\_

Public hearings and meetings \_\_\_\_\_

Friends and neighbours \_\_\_\_\_

Other (please specify) \_\_\_\_\_

12) DID YOU ATTEND ANY PUBLIC MEETINGS CONCERNING THE ALCAN ALUMINUM SMELTER PROPOSAL?

YES \_\_\_\_\_ NO \_\_\_\_\_

If answer to Question 12 is no, please proceed to Question 23.

13) HOW MANY MEETINGS DID YOU ATTEND? \_\_\_\_\_

14) OVER WHAT PERIOD OF TIME WERE THESE HELD? \_\_\_\_\_

(Repeat questions 15 through 22 for as many meetings as attended).

15) WERE THESE MEETINGS CONDUCTED BY:

ALCAN \_\_\_\_\_ PROVINCIAL GOVT. \_\_\_\_\_ LOCAL GOVT. \_\_\_\_\_

Other interest groups (please specify)

16) WHAT WAS THE PURPOSE OF THE MEETING?

17) IN YOUR OPINION DID THE SPONSORS OF THE MEETING EFFECTIVELY COMMUNICATE THEIR PURPOSE?

18) WAS THE MEETING BIASED FOR OR AGAINST THE PROPOSAL?

FOR \_\_\_\_\_ AGAINST \_\_\_\_\_

19) IN YOUR OPINION, WAS EVERYONE PRESENT ALLOWED TO PARTICIPATE EQUALLY?

20) IN YOUR OPINION, WERE THE MEETINGS MONOPOLIZED OR CONTROLLED BY ONE OR A FEW GROUPS?

YES \_\_\_\_\_ NO \_\_\_\_\_

If yes, which one dominated?

21) IN YOUR OPINION, WAS THE PUBLIC ABLE TO PROVIDE INPUT INTO THE MEETINGS THROUGH QUESTIONS AND DEBATE?

22) IN YOUR OPINION, WAS IT MADE CLEAR IN THE MEETING WHAT THE POSSIBLE IMPACTS A SMELTER COULD BE ON THE AREA?

23) WERE ANY OPEN HOUSES HELD CONCERNING THE ALCAN SMELTER PROPOSAL?

YES \_\_\_\_\_ NO \_\_\_\_\_

How many? \_\_\_\_\_

24) WHO SPONSORED THESE OPEN HOUSES?

ALCAN \_\_\_\_\_

Provincial Govt. \_\_\_\_\_

Local Govt. \_\_\_\_\_

Other interest groups (please specify)

25) IF YES, DID YOU FIND OUT EVERYTHING YOU WANTED TO KNOW ABOUT THE SMELTER PROPOSAL?

YES \_\_\_\_\_ NO \_\_\_\_\_

If no, what questions were left unanswered for you?

26) BESIDES PUBLIC MEETINGS OR OPEN HOUSES, DID YOU GET INFORMATION ABOUT THE ALCAN SMELTER FROM ANY OTHER SOURCES? YES \_\_\_\_\_ NO \_\_\_\_\_

Please specify sources.

27) BESIDES PUBLIC MEETINGS OR OPEN HOUSES, DID YOU GET INFORMATION ABOUT THE GOVERNMENT REVIEW FROM ANY OTHER SOURCES? YES \_\_\_\_\_ NO \_\_\_\_\_

Please specify sources.



28) HOW DID THE GOVERNMENT PLAN TO REVIEW THE ALCAN PROPOSAL?

WHAT WOULD HAVE BEEN THE RESULT OF THE REVIEW?

29) WAS GOVERNMENT GOING TO INVOLVE THE PEOPLE OF THE COMMUNITY IN THE REVIEW?

YES \_\_\_\_\_ NO \_\_\_\_\_

How (If Yes)

30) IN YOUR OPINION, WOULD YOUR VIEWS AND THE VIEWS OF THIS COMMUNITY HAVE BEEN CONSIDERED IN THE GOVERNMENT'S DECISION ABOUT ALCAN?

YES \_\_\_\_\_ NO \_\_\_\_\_

Why or why not?

31) IN YOUR OPINION, WAS AN ADEQUATE AMOUNT OF INFORMATION MADE AVAILABLE TO YOU CONCERNING THE ALCAN ALUMINUM SMELTER PROPOSAL?

YES \_\_\_\_\_ NO \_\_\_\_\_

How do you think this could be improved?

32) IN YOUR OPINION, WHO SHOULD CONDUCT PUBLIC MEETINGS?

(Please specify)

33) IN YOUR OPINION, WHO SHOULD HOLD PUBLIC OPEN HOUSES?

(Please specify)

34) WERE ALL SIDES FOR AND AGAINST ALCAN PRESENTED AT MEETINGS?

YES \_\_\_\_\_ NO \_\_\_\_\_

If no, which sides were not presented?

35) IN YOUR OPINION, DID GOVERNMENT PARTICIPATE ADEQUATELY IN THESE MEETINGS?

YES \_\_\_\_\_ NO \_\_\_\_\_

If no, how could government have contributed more?

In the open houses? YES \_\_\_\_\_ NO \_\_\_\_\_

If no, how could government have contributed more?

36) IN YOUR OPINION, DID ALCAN PARTICIPATE ADEQUATELY IN THESE MEETINGS?

YES \_\_\_\_\_ NO \_\_\_\_\_

If no, how could ALCAN have contributed more?

37) DID YOU CONSIDER MOVING IF ALCAN HAD PROCEEDED WITH PLANS TO CONSTRUCT A SMELTER IN THE AREA?

YES \_\_\_\_\_ NO \_\_\_\_\_

If yes, give reasons why.

38) IN YOUR OPINION, WOULD AN ALUMINUM SMELTER AT BALMORAL HAVE BENEFITTED YOU PERSONALLY?

YES \_\_\_\_\_ NO \_\_\_\_\_

If yes, in what ways?

39) IN YOUR OPINION, WOULD ALCAN HAVE BENEFITTED THE INTERLAKE AREA?

YES \_\_\_\_\_ NO \_\_\_\_\_

If yes, in what ways?

40) IN YOUR OPINION, WOULD THE ALCAN SMELTER HAVE HAD ANY IMPACTS ON THE ENVIRONMENT IN THE SURROUNDING AREA?

YES \_\_\_\_\_ NO \_\_\_\_\_

In what means?

41) ARE YOU OPPOSED TO COMMERCIAL/INDUSTRIAL DEVELOPMENT IN THE R.M. OF ROCKWOOD?

YES \_\_\_\_\_ NO \_\_\_\_\_

If no, what type of development would you be in favor of?

42) WHAT DO YOU FEEL WAS THE CAUSE FOR ALCAN DECIDING TO POSTPONE THE CONSTRUCTION OF AN ALUMINUM SMELTER IN MANITOBA?

Please explain.

43) HOW WOULD YOU FEEL ABOUT ALCAN LOCATING IN THE BALMORAL AREA NOW?

44) HOW WOULD YOU FEEL ABOUT ALCAN LOCATING IN ANOTHER AREA OF THE PROVINCE?  
In what area(s)

45) DID THE ALCAN SMELTER CAUSE ANY HARD FEELINGS BETWEEN PEOPLE IN THIS COMMUNITY?

YES \_\_\_\_\_ NO \_\_\_\_\_

In what ways?

46) IF RIFTS DID OCCUR BETWEEN PEOPLE, IS THIS STILL PRESENT TODAY?

YES \_\_\_\_\_ NO \_\_\_\_\_

Comments.

47) DO YOU HAVE ANYTHING ELSE TO ADD ABOUT ALCAN, THE GOVERNMENT'S INVOLVEMENT, OR OTHER THINGS?

APPENDIX C  
PROJECT DESCRIPTION GUIDELINES

ENVIRONMENTAL

PROJECT DESCRIPTION

MANAGEMENT DIVISION

GUIDELINES

JULY, 1976

INTRODUCTION

Within the conditions of the provincial environmental assessment and review process, all provincial departments, agencies and crown corporations shall submit all information, which in their best professional judgement, will enable the Review Agency to understand the nature and scope of the project as well as to recognize the potential environmental impacts. This information must be submitted prior to irrevocable decisions or commitments respecting proposed Provincial undertakings. With all due consideration to the above, the proponent shall submit:

1. Information and technical data on the proposed project.
2. Relevant drawings, plans, photos, maps, charts, etc.
3. A description of and a statement of the rationale for the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking.
4. A description of all in situ facilities, and auxiliary or support structures.
5. Information on anticipated gaseous, liquid and solid waste generation.
6. The manner in which compliance with existing federal and provincial environmental quality standards and regulations will be achieved.
7. Transportation requirements respecting incoming and outgoing material, employee and customer traffic, etc., insofar as they affect contamination of the air, water, or soil.
8. The organizational structure which would be established to

APPENDIX D  
EIA GUIDELINES

ENVIRONMENTAL IMPACT  
ASSESSMENT GUIDELINES

ENVIRONMENTAL  
MANAGEMENT DIVISION  
JULY, 1976

All provincial departments, agencies and crown corporations required to undertake or procure an environmental assessment of a proposed project shall comply with the following impact assessment guidelines, and such other guidelines as may be developed by the Environmental Assessment Review Agency.

A. Guidelines Respecting All Environmental Impacts of a Proposed Project

1. All primary and secondary effects, beneficial or otherwise, should be described. Short and long-term impacts should be projected.
2. The environmental assessment should address:
  - a. All ecological changes expected through alteration of the physical and biological habitat.
  - b. The implication of these ecological changes as related to air, water, or soil.
3. The time frame in which impacts are anticipated should be detailed.
4. Remedial, protective and corrective measures to be implemented if required should be thoroughly described.



B. Guidelines Respecting Probable Adverse Effects Which Cannot Be Avoided

1. The type and magnitude of any adverse impact on air, water, or soil which cannot be reduced in severity, or which cannot be reduced to an acceptable level should be described.
2. For those impacts which cannot be eliminated or reduced, their implications and the reasons why the proposed action should be accepted, notwithstanding the limitations of these effects or impacts should be described in detail.
3. Where abatement or mitigative measures can be implemented to reduce adverse effects to acceptable levels, the basis for considering these levels adequate, and the effectiveness and costs of the abatement measures should be specified.

C. Guidelines Respective Alternatives

1. Alternative facility configurations of the proposal should be considered.
2. Alternative locations for the proposed project should be discussed.
3. Alternatives to the proposed project which may involve trade-offs among uses of available environmental resources should be developed, described and objectively weighed.
4. The analysis of alternatives should be structured in a manner which will permit comparison of environmental benefit or damage.

5. Where practical, impacts of alternative action(s) should be qualified or described qualitatively to facilitate an objective judgement of their significance.

D. Guidelines Respecting the Relationship Between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

1. Cumulative and long-term effects of the proposed action which either significantly reduce or enhance the state of the environment should be described.
2. The desirability of the proposed action should be weighed to guard against shortsighted foreclosure of future options or needs.
3. Special attention should be devoted to those effects which narrow the range of beneficial uses of the environment or pose long-term risks to health or property.
4. A description and evaluation of the immediate long-term environmental effects.
5. Irreversible environmental damage which may result from accidents associated with the proposed action should be considered.