

Canadian Institute of
Resources Law

Institut canadien du
droit des ressources

Conserving Canada's Natural Capital: The Boreal Forest

AI-Pac Case Study Report – Part 2 Regulatory Barriers and Options

Prepared for the
National Round Table on the Environment and the Economy

By

Steven A. Kennett
Monique M. Ross
Canadian Institute of Resources Law

In collaboration with

Daniel Farr
Biota Research Inc.

Brad Stelfox
Forem Technologies

Marian Weber
Alberta Research Council

July 2004

Table of Contents

Executive Summary	iv
1. Introduction.....	1
2. Objectives and Scope of the Case Study	1
2.1. Objectives	1
2.2. Conservation of Natural Capital and Sustainable Development.....	2
2.3. Resource Values and Policy Choices in the Al-Pac FMA.....	3
2.4. Constitutional and Jurisdictional Issues.....	4
3. Case Study Methodology.....	5
3.1. Analytical Framework	5
3.2. Research Methods.....	6
3.3. Involvement of Aboriginal Peoples	7
4. Cross-Cutting Barriers to the Conservation of Natural Capital.....	8
4.1. Lack of Political Will and Accountability by Governments.....	9
4.1.1. Transparency about political choices and their implications.....	9
4.1.2. Political will to follow through on explicit policy direction and multi-stakeholder processes.....	10
4.1.3. Lack of an institutional focal point for accountability.....	12
4.1.4. Absence of effective accountability mechanisms in legislation	12
4.2. Inadequate Integration of Decision-Making Across Sectors and Land Uses and Among Regulatory Processes	13
4.3. Lack of Conservation Planning at a Landscape Level.....	18
4.4. Constraints and Incentives Relating to the Resource Disposition and Tenure Systems	20
4.5. Key Stewards are Often Not ‘at the Table’.....	23
4.6. Lack of Economic Benefits and Incentives for Key Stewards	24
4.7. Lack of Information Tools to Support Decision Making.....	25
4.8. Failure to Integrate True Costs and Benefits of Nature	27
4.9. Lack of Financial Resources to Support Conservation and Partnerships	27
4.10. Summary of Findings on Cross-Cutting Barriers to Conservation.....	28
5. Regulatory Barriers and Policy Options for Specific Management Objectives.....	28
5.1. Maintain Total Forest Cover	28
5.2. Maintain the Natural Disturbance Regime	30
5.3. Maintain Old Forest	31
5.4. Maintain Key Aquatic and Hydrological Features	32
5.5. Recognize and Protect Areas of Traditional Aboriginal Use and Value	33
5.6. Establish Areas within the Managed Forest where Human Impacts are Prohibited or Severely Reduced	35
5.7. Reduce Linear Disturbance Density and Manage Human Access.....	38
5.8. Maintain Terrestrial Carbon Stocks and Sinks	44

6. Areas for Additional Research and Analysis..... 45

7. Summary and Conclusions..... 45

Appendix 1 – List of Interviewees 47

Appendix 2 –Interview Request Letter and Outline of Discussion Points for Interviewees.. 48

Appendix 3 –Workshop Agenda and Issue and Option Outline for Workshop Participants .. 52

Executive Summary

The National Round Table on the Environment and the Economy (NRTEE) commissioned this case study of the Al-Pac Forest Management Area (FMA) as part of its Boreal Forest Program. The objective of the case study is to identify fiscal and regulatory barriers to conservation and policy options for conserving natural capital, while recognizing the importance of resource development and other economic and social values for land use in this area. Part 2 of the case study report focuses on regulatory barriers and options.

The discussion begins with brief introductory comments in Section 1. Section 2 provides an overview of the objectives and scope of the case study, including the presentation of working definitions for the terms ‘conservation’ and ‘natural capital’ that were included in the NRTEE’s report entitled *Securing Canada’s Natural Capital: A Vision for Nature Conservation in the 21st Century* (2003). For purposes of the case study, the term ‘regulatory’ is broadly defined to include the legal, institutional and policy framework for managing land and resource use within the Al-Pac FMA. Topics addressed in this section of the report include the relationship between the case study objectives and the broader concept of sustainable development, the distinctive constellation of resource values within the Al-Pac FMA, and the constitutional and jurisdictional context for the case study.

Section 3 of this report describes briefly the case study methodology, beginning with the analytical framework that was developed by the project team. Central to that framework is the list of management objectives that could be used to promote the conservation of natural capital within the Al-Pac FMA. These objectives and the rationale for selecting them are described in Part 1 of the case study report. The use of key informant interviews and the stakeholder workshop are then described, followed by a discussion of the involvement of Aboriginal peoples in the case study. As noted in that discussion, the case study design and the limited time and budget for this project made it difficult to obtain input from Aboriginal peoples.

Section 4 presents a series of nine cross-cutting barriers to the conservation of natural capital in the Al-Pac FMA. Seven of these barriers were identified by the NRTEE in *Securing Canada’s Natural Capital*. Two additional barriers were included because of the importance attached to them by interviewees and workshop participants. All of these barriers are ‘cross-cutting’ because they apply to many of the specific management objectives referred to above. The barriers are:

- Lack of political will and accountability by governments;
- Inadequate integration of decision making across sectors and land-uses and among regulatory processes;
- Lack of conservation planning at a landscape level;
- Constraints and incentives relating to the resource disposition and tenure systems;
- Key stewards are often not ‘at the table’;
- Lack of economic benefits and incentives for key stewards;

- Lack of information tools to support decision making;
- Failure to integrate true costs and benefits of nature; and
- Lack of financial resources to support conservation and partnerships.

While many of these barriers are fairly general in nature, they highlight some of the policy ‘fundamentals’ that arguably must be in place for successful implementation of specific management objectives designed to conserve natural capital within a sustainable development framework.

Concerns regarding political will and accountability were of several types. Interviewees and workshop participants highlighted the need for transparency about the fundamental political and economic choices that guide government decision-making on land and resource use and argued that governments should be accountable for the resulting trade-offs that may affect natural capital. The importance of following through with the implementation of policy directions and recommendations from multi-stakeholder processes was also noted, as was the need for an institutional focal point for accountability. Finally, stakeholders commented on the absence of effective accountability mechanisms in some legislation governing land and resource use.

Many stakeholders identified the lack of effective integration of decision-making across sectors and land uses and among regulatory processes as the primary barrier to conserving natural capital on the working landscape within the AI-Pac FMA. Numerous specific examples of this lack of integration were identified. All of these examples point to the need for integrated landscape management in order to set and achieve landscape-level objectives in a context of multiple activities, competing land-use values, and significant cumulative effects. Several interviewees and workshop participants argued strongly that this approach must include a new governance model for managing land and resource use within the AI-Pac FMA.

There was also general agreement that the lack of land-use planning at the landscape level was a significant barrier to the conservation of natural capital. This barrier was discussed in some detail in the NRTEE’s report on *Securing Canada’s Natural Capital*. The AI-Pac FMA case study highlighted specific deficiencies in the applicable planning processes and underlined the importance of planning as an integrative mechanism and a means of managing cumulative effects.

Constraints and incentives relating to the resource disposition and tenure systems in the AI-Pac FMA are also examined in some detail. In particular, the orientation of the tenure regimes to maximizing short-term economic benefits and the resulting lack of flexibility to accommodate other values, including the conservation of natural capital, were noted by stakeholders in relation to both energy and forestry sectors. Options for reforming the tenure regimes include extending the time lines for resource development in order to facilitate planning and inter-industry cooperation, moving to larger blocks of resource rights with fewer tenure holders, and relaxing the ‘use it or lose it’ requirement that applies to both the forestry and the oil and gas sectors.

The absence of key stewards and other stakeholders ‘at the table’ is a barrier to conserving natural capital that reflects several underlying problems. In some instances, there is no inclusive

and transparent decision-making process for stakeholders to participate in (i.e., no ‘table’). Within the AI-Pac FMA, this problem is illustrated by the absence of a comprehensive planning process and the closed nature of government decision-making on the issuance of resource rights. Some interviewees and workshop participants also raised concerns about the lack of effective and high-level participation by government in multi-stakeholder forums, linking this deficiency to subsequent problems with the implementation of recommendations from these forums. Finally, the challenge of ensuring full and effective participation by Aboriginal peoples in decision-making was noted by many stakeholders. This issue is returned to in a subsequent section.

Interviewees and workshop participants commented in some detail on the lack of information tools to support decision-making as a barrier to the conservation of natural capital. The need for additional scientific research to support decision-making was noted, as was the existence of some ‘best practices’ in the area of modeling land-use scenarios within the AI-Pac FMA. Stakeholders also commented on the need to ensure that existing information is easily accessible, the importance of linking information to decision-making, and the need to incorporate traditional land-use studies and the traditional ecological knowledge of Aboriginal peoples into decision-making.

Lack of financial resources to support conservation and partnerships was a barrier identified by the NRTEE that resonated with many stakeholders familiar with the AI-Pac FMA. The detrimental impact of government cut-backs on the departments and agencies charged with managing land and resources was widely noted, as was the significant revenue stream accruing to government from resource development. There is a broad consensus that management capacity is not keeping up with the pace of development and that this growing gap places natural capital at risk.

The lack of economic benefits and incentives for key stewards and the failure to integrate the true costs and benefits of nature into decision-making are two barriers that were identified by the NRTEE in *Securing Canada’s Natural Capital*. Both of these barriers are relevant to the AI-Pac FMA. They are, however, discussed in Part 3 of the case study report, which deals with fiscal issues and the use of economic instruments to conserve natural capital.

Overall, the case study highlights compelling reasons to focus on the regulatory ‘fundamentals’ in the context of multiple and increasing demands on the land and resource base. The most important general lesson from the regulatory component of the AI-Pac case study is that conservation of natural capital on this type of working landscape is difficult to achieve without the ability to address cumulative effects through integrated landscape management.

Section 5 of this report examines regulatory barriers and policy options that relate to the following eight management objectives:

- Maintain total forest cover;
- Maintain the natural disturbance regime;
- Maintain old forest;

- Maintain key aquatic and hydrological features;
- Recognize and protect areas of traditional aboriginal use and value;
- Establish areas within the managed forest where human impacts are prohibited or severely reduced;
- Reduce linear disturbance density and manage human access; and
- Maintain terrestrial carbon stocks and sinks.

In each case, a number of regulatory barriers to progress are identified and policy options suggested. The level of detail contained in these sections cannot easily be captured in an Executive Summary, so readers are referred to the report itself for specifics.

Areas for additional research and analysis are briefly presented in Section 6. All of the policy options surveyed in the report could be the subject of more detailed examination in order to generate specific proposals for legal, institutional and policy reform. Additional work could also focus on the potential for using specific federal and provincial legislation to conserve natural capital.

The report concludes by noting that the case study findings are relevant not only to the Al-Pac FMA, but also to the boreal forest as a whole. There is clearly considerable potential for regulatory reform that would promote the conservation of natural capital within the case study area. The Al-Pac FMA also offers decision-makers and stakeholders in other parts of the boreal forest an opportunity to ‘look ahead’ to a scenario of intense, multiple and sometimes competing land uses and values. The lessons from this case study thus suggest how legislation, policies and land-use practices could be modified throughout Canada’s boreal forest whole in order to promote the conservation of natural capital within a sustainable development framework for managing land and resource use.

1. Introduction

Part 2 of the case study report on the AI-Pac Forest Management Area (FMA) examines regulatory barriers to the conservation of natural capital and policy options for overcoming those barriers. The term ‘regulatory’ is broadly defined to include the legal, institutional and policy framework for managing land and resource use within the AI-Pac FMA. This regulatory analysis is one component of the three-part case study report, which also includes a review of conservation values, land and resource uses, and management objectives for the AI-Pac FMA (Part 1) and a discussion of fiscal barriers and associated policy options, including the use of economic instruments, relating to the conservation of natural capital (Part 3). The three parts of the report are submitted as separate documents.

This part of the report begins with brief sections on the objectives and scope of the case study and the study methodology. The discussion then turns to a two-stage analysis of barriers and policy options. The first stage addresses cross-cutting barriers to the conservation of natural capital and corresponding regulatory responses. The second stage focuses on specific regulatory issues relating to each of the management objectives identified in Part 1 of the report. Throughout these sections, instances where stakeholders within the AI-Pac FMA have adopted innovative approaches to promoting or facilitating the conservation of natural capital are identified as ‘best practices’. For ease of reference, key recommendations and conclusions are italicized. The final sections identify areas for future research and provide brief concluding comments.

2. Objectives and Scope of the Case Study

This section reviews the principal objectives of the case study and considers their relationship to the broader issue of sustainable development. It also highlights the distinctive resource values of the AI-Pac FMA and comments briefly on the approach taken to constitutional and jurisdictional issues.

2.1. Objectives

The basic objectives and scope of this case study were defined by the Request for Proposals issued by the National Round Table on the Environment and the Economy (NRTEE) and were further refined in the project proposal. The case study is intended to identify fiscal and regulatory barriers to conservation and policy options for conserving natural capital, while recognizing the importance of resource development and other economic and social values for land use in this area.

The examination of these issues within the AI-Pac FMA is one of three case studies commissioned by the NRTEE as part of its Boreal Forest Program. The goal of this program is “To advance conservation in balance with economic activity on public lands allocated for resource development in Canada’s boreal forest through regulatory and fiscal policy reform.”

The Boreal Forest Program builds on the findings, conclusions and recommendations contained in *Securing Canada's Natural Capital: A Vision for Nature Conservation in the 21st Century*.¹

Securing Canada's Natural Capital also provides working definitions for two of the key terms relating to the case study objectives. Appendix A to the NRTEE's report defines "conservation" as "the maintenance or sustainable use of the Earth's resources in a manner that maintains ecosystems, species and genetic diversity and the evolutionary and other processes that shaped them."² "Natural capital" is defined as "natural assets in their role of providing natural resource inputs and environmental services for economic production."³ The discussion of this term identifies three main categories of natural capital (renewable and non-renewable natural resource stocks, land and ecosystems) and notes that resource stocks provide raw materials for production, land provides space for economic activity, and "ecosystems are essential for the services they provide directly and indirectly to the economy."⁴ The case study did not involve a detailed analysis of definitional issues. Most interviewees and workshop participants appeared to understand clearly the focus of inquiry and were able to offer specific comments on obstacles and policy options relating to the conservation of natural capital.

The focus on conservation of natural capital is consistent within the NRTEE's overall mandate, which is to "play the role of catalyst in identifying, explaining and promoting, in all sectors of Canadian society and in all regions of Canada, principles and practices of sustainable development." The following section reviews briefly the connection between the specific objective of the case study and the broader issues relating to sustainable development.

2.2. Conservation of Natural Capital and Sustainable Development

Several people who were interviewed for the case study expressed the view that the outline of issues and options distributed before the interviews⁵ was too narrowly focused on conservation. They argued that a broader 'sustainable development' perspective should be explicitly adopted when considering issues and policy options relating to land and resource management in the Al-Pac area. This issue was also discussed with NRTEE staff on several occasions during the case study.

The authors of this case study report recognize that the design and implementation of policies affecting land and resource use in the Al-Pac FMA will – or at least should – involve a careful consideration of economic, social and environmental values. Determining the appropriate balance between these three elements of sustainable development is a matter of political and, ultimately, social choice. The full range of factors that should inform this choice and the overarching policy and institutional framework that will be required to achieve sustainable development in practice are matters that the NRTEE Task Force for the Boreal Forest Program may want to examine. They are, however, beyond the scope of this case study. The focus here is simply on the principal barriers to the conservation of natural capital in the Al-Pac FMA and the

¹ NRTEE, *State of the Debate – Securing Canada's Natural Capital: A Vision for Nature Conservation in the 21st Century* (Ottawa: 2003).

² *Ibid.*, p. 100.

³ *Ibid.*, p. 102.

⁴ *Ibid.*, p. 102.

⁵ See Appendix 2.

policy options that could be used to promote this value, should it be recognized as important by decision-makers.

2.3. *Resource Values and Policy Choices in the Al-Pac FMA*

The information and analysis presented in Part 1 of this report demonstrate clearly the pervasive and long-term challenges that must be addressed if the conservation of natural capital is to co-exist with economic development on the working landscape within the Al-Pac FMA. Many of the issues raised by the range and intensity of development occurring on the Al-Pac FMA are also being played out – or may be played out in the future – in other areas of the boreal forest. In some respects, however, the Al-Pac FMA embodies a unique set of challenges.

In particular, the presence of globally significant bitumen reserves in oil sands distinguishes portions of the Al-Pac FMA from other areas of the boreal forest. This subsurface resource has two important implications. First, its high economic value will inevitably affect the trade-offs that governments and society as a whole are prepared to make between industrial activity and the conservation of natural capital. Second, producing this resource precludes or constrains some conservation options because of its relatively significant ecological impacts, whether from surface mining or from in situ operations.

The concentration of high subsurface resource values and significant ecological effects from development within the oil sands area creates a very challenging environment for initiatives directed at conserving natural capital. While mitigation and reclamation in the oil sands area may be capable of maintaining or restoring some aspects of natural capital, particularly over the long term, many of the stakeholders interviewed for this case study accept that economic development in the oil sands area is inevitable and some argued that this development will have a significant ecological cost. In addition, some interviewees spoke of the need for policies that would provide opportunities for offsetting these activities in areas outside of the Al-Pac FMA.

This situation is not, however, typical of the boreal forest as a whole. While the implications of oil sands development for natural capital are undoubtedly significant from a local and regional perspective, the total area that is likely to be disturbed through surface mining and in situ operations remains a relatively small portion of Canada's boreal forest. For that reason, the regulatory analysis for this case study has not examined environmental issues unique to oil sands surface mining and, to a lesser extent, in situ recovery. These issues include the reclamation of open-pit mines, the management of large tailing ponds, the intense development footprint from in situ recovery, and the local air quality issues associated with bitumen production and processing.

Deleted:

This choice of emphasis is not intended to downplay the importance of oil sands development from environmental, economic and social perspectives. For many local residents, notably Aboriginal peoples, managing the environmental effects of oil sands development is vitally important. Efforts to reconcile social, cultural, economic and environmental values in this context clearly merit attention and support. In terms of the broader objectives of this case study, however, choices must be made and all issues cannot receive equal attention. The decision not to examine in detail the issues specific to oil sands development reflects the limited resources available for this case study and the interest of the NRTEE in results that are 'nationally

applicable'. It should be noted, however, that few if any stakeholders interviewed for this case study appear willing to 'write off' the oil sands area in terms of natural capital and many individuals and organizations are working hard to ensure that industrial development in this area does not come at an unacceptable environmental price.

2.4. Constitutional and Jurisdictional Issues

The regulatory context for land and resource management within the AI-Pac FMA is, of course, defined at a fundamental level by Canada's constitution. The constitution has potentially important implications for conservation in the boreal forest because it establishes the division of powers between the federal and provincial orders of government and it entrenches the legal rights of Aboriginal peoples. These constitutional issues are not, however, addressed in any detail in this case study.

The NRTEE's Request for Proposals states that the case study should focus particularly on barriers to conservation that are "national in scope" and that it should identify "nationally-applicable" areas of recommendations and "national-level" incentives and instruments. The analysis is not, however, restricted to areas of federal jurisdiction, nor is the case study intended to address the constitutional or intergovernmental aspects of resource and environmental management in the AI-Pac FMA. The "national" focus is achieved by highlighting the particular barriers and policy options that are most likely to be relevant in other areas of the boreal forest and, indeed, throughout other parts of Canada.

The case study was therefore guided by the assumption that there are opportunities for both orders of government to contribute to achieving conservation objectives in the boreal forest within the current constitutional framework, although it is recognized that the provincial role is predominant in relation to many regulatory and fiscal tools. In particular, the provincial government owns Crown land and resources in the AI-Pac FMA and exercises most, but not all, of the regulatory powers relating to land and resource use. As a result, authority in areas such as land-use planning, resource disposition and the regulation of many of the activities that may affect natural capital is in provincial hands.

Federal authority, while more limited in scope, can be important in certain areas such as the protection of fisheries and migratory birds, the regulation of toxic substances, and the management of transboundary issues. Recent federal legislation dealing with species at risk supports a federal role in certain circumstances. The federal government also has constitutional authority over "Indians" and "lands reserved for the Indians"⁶ and is responsible for ensuring that Aboriginal and treaty rights are not unjustifiably infringed. Some projects in the AI-Pac FMA are also subject to both federal and provincial requirements for environmental assessments. Under the *Canadian Environmental Assessment Act*, any federal assessment must consider the environmental effects of a project "on the current use of lands and resources for traditional purposes by aboriginal persons" as well as on historical and archeological sites. Finally, the federal government has the capacity to support initiatives and influence activities through a broad range of policies and programs, including the use of tax incentives and the ability to fund activities in areas of provincial jurisdiction (the federal 'spending power').

⁶ *Constitution Act, 1867*, s. 91(24).

The discussion of regulatory issues in this report is not, however, organized along jurisdictional lines. Rather, it focuses on a set of barriers and management objectives, many of which could be addressed in varying degrees by the federal and Alberta governments acting either individually or cooperatively. The types of intergovernmental conflict or cooperation that could arise in this context and their implications for the conservation of natural capital are left for others to consider.

A review of the evolution of Aboriginal rights through constitutional jurisprudence is also beyond the scope of this case study. The role of Aboriginal peoples in managing the boreal forest is rapidly evolving in Canada as a result of legal and political developments. One of the legal issues that has been the subject of intense debate and scrutiny by the courts is the government's duty to consult with Aboriginal peoples when its actions or decisions may infringe on their rights and to accommodate these rights when making decisions that affect them. This duty is particularly relevant to decisions pertaining to resource developments that have the potential to negatively affect lands and resources traditionally used by Aboriginal peoples and the environment in which they live. While judicial consideration of the "duty to consult and accommodate" is ongoing, the federal and provincial governments, including the Alberta government, are developing Aboriginal consultation policies that may help to shape future land and resource management decisions and lead to a greater involvement of Aboriginal communities in the decision-making process. These legal and policy developments may, in turn, influence the conservation of natural capital in the boreal forest.

Furthermore, some Aboriginal organizations in Canada have entered into agreements with resource companies that address a broad range of issues, including the conservation of natural capital. One person interviewed for this case study remarked that, after climate change, Aboriginal peoples were likely to be the single greatest influence on the future of the boreal forest over the coming century. This important set of issues could only be briefly examined within the time frame and budget allocated for this case study. Aboriginal involvement in the case study is discussed in the following section on study methodology.

3. Case Study Methodology

This section of the report discusses three aspects of the case study methodology that are relevant to the regulatory analysis: (1) the general analytical framework; (2) the research methods; and (3) the involvement of Aboriginal stakeholders.

3.1. Analytical Framework

The regulatory analysis presented in this part of the report fits within the overall analytical framework that was developed for the Al-Pac FMA case study by the project team.⁷ Central to this framework is the set of possible management objectives for the Al-Pac FMA that was identified and discussed in Part 1. These objectives were selected because they indicate how land and resource use in the area could be managed in ways that would promote the conservation of various aspects of natural capital. The initial selection of objectives was based on the expertise of

⁷ Project team members are Daniel Farr (Biota Research Ltd.), Steven Kennett & Monique Ross (Canadian Institute of Resources Law), Brad Stelfox (Forem Technologies) and Marian Weber (Alberta Research Council).

project team members and a review of relevant literature. The objectives were refined by the project team through a process that included further analysis by team members and consideration of input received from stakeholder interviews and from the case study workshop, held in Fort McMurray on May 3, 2004.

Part 1 of the report shows how these objectives are related both to the conservation values within the Al-Pac FMA and to the suite of human land and resource uses that will, or may, have negative impacts on natural capital in the region. Part 1 thus provides the basis for the discussion in Parts 2 and 3 of barriers to conserving natural capital (i.e., barriers to achieving these management objectives) and policy options for overcoming those barriers.

3.2. Research Methods

The primary research method used for this analysis of regulatory issues and options was a series of key informant interviews, some in person but most by telephone. Interviewees included members of the Task Force overseeing the NRTEE's Boreal Forest Program and representatives from government (federal and provincial), industry (oil and gas, forestry), environmental groups and Aboriginal organizations. A list of interviewees is included as Appendix 1. The selection of interviewees was based primarily on the project team's knowledge of key stakeholders and on suggestions from Task Force members, NRTEE staff, interviewees themselves, and other contacts. The project team's objective was to interview a broad range of key stakeholder representatives and other individuals having an interest in or knowledge about the Al-Pac FMA. The interviewees do not, however, constitute a representative sample of any broader group. Time and budget limitations precluded a more comprehensive set of interviews.

Potential interviewees were generally contacted first by e-mail to determine whether or not they were willing to be interviewed. The initial contact letter is included in Appendix 2. At least one follow-up e-mail was sent to potential interviewees who did not respond to the initial request for an interview. All interviewees were sent an outline of discussion points prior to the interview (see Appendix 2). A few of the people who were contacted recommended others within their organizations as appropriate interviewees and, in some instances, several people from one organization were interviewed. Interviews generally lasted about one hour and covered some, but not all, of the issues identified on the outline. Some interviews followed the questions listed in the outline fairly closely, while others adopted a less structured approach. All interviews were conducted on a 'not-for-attribution' basis.

The information and ideas obtained from interviews were supplemented by input received at the stakeholder workshop in Fort McMurray. The workshop agenda and a copy of the "Issues and Options Outline for Workshop Participants" that was distributed prior to the workshop are included in Appendix 3. Members of the project team participated in the workshop and summary notes prepared by NRTEE staff were also reviewed and incorporated into this report.

The discussion that follows is based primarily on these sources of stakeholder input, although it also reflects the expertise of project team members and the results of a review of selected relevant publications. In a project of this scope, the presentation of findings inevitably reflects a series of explicit and implicit choices regarding the appropriate areas of emphasis and the depth

of analysis to be presented. The authors have endeavoured to provide as complete and balanced a review of issues and options as possible within the time and budget available for this project.

3.3. *Involvement of Aboriginal Peoples*

At the outset, it is important to note that Aboriginal peoples⁸ are “not just another stakeholder”, since they enjoy special constitutional protection of their rights. As noted earlier, they are entitled to be consulted by government in the context of resource development that may affect their rights, and the courts and governments are currently engaged in defining what are “adequate” consultation processes.

The Aboriginal communities living within or in proximity to the Al-Pac FMA have been deeply affected by the intensity of resource development, starting with oil sands and conventional oil and gas development and followed by forestry operations. From their standpoint, participation in an interview process that solicits their views on land and resource management issues, in order to formulate recommendations to government on legal and fiscal reform, is potentially a “consultation process”. Because of the current legal uncertainty and political developments in this area, Aboriginal communities have been reluctant to be interviewed by consultants whose role was unclear to them. They have taken the view that they should have been approached by the NRTEE at the outset of the project and involved in the formulation and planning of the research. One Aboriginal community member declined to be interviewed because she viewed the interview as a form of consultation with Al-Pac, and Al-Pac has not yet discussed the impacts of its activities nor entered into an agreement with her community. The same reluctance was expressed by an elder from another Aboriginal community, who objected to what he viewed as improper consultation with the community. He considered that a telephone interview was unsatisfactory, a face-to-face interview was preferable, and he further mentioned that he was reluctant to participate without the support of the other elders in the community.

The limited time and budget available for this research project did not allow for the kind of interviews that would have been considered adequate by Aboriginal representatives. A complicating factor is the fact that Aboriginal communities within the Al-Pac FMA, particularly those located in the Fort McMurray area, are inundated with requests for consultation from resource companies, government agencies and other parties. Many Aboriginal representatives and community members therefore suffer from overload. As a result, they have neither the time nor the human capacity to entertain requests for interviews by consultants when these interviews do not meet an immediate need or bring a direct benefit to them.

Nevertheless, the project team was able to obtain some input from two Aboriginal communities, and several Aboriginal representatives did participate in the Fort McMurray workshop at the invitation of the NRTEE. Further, non-Aboriginal interviewees and workshop participants offered their views on Aboriginal issues, and these views are also included in this report.

⁸ The term Aboriginal peoples as used in this report encompasses the Indian and Métis peoples as per s. 35 of the *Constitution Act, 1982*.

4. Cross-Cutting Barriers to the Conservation of Natural Capital

Interviews for this case study, the stakeholder workshop and the review of issues by the project team highlighted a number of cross-cutting barriers to conservation. These issues are characterized as ‘cross-cutting’ because they are relevant to many of the specific management objectives that were identified in Part 1 of this report.

Many of these barriers are already well known. In particular, the case study provided an opportunity to elicit comments on the following “barriers to progress” that the NRTEE identified in its report on *Securing Canada’s Natural Capital*.⁹

- Lack of political will and accountability by governments;
- Lack of conservation planning at a landscape level;
- Key stewards are often not ‘at the table’;
- Lack of economic benefits and incentives for key stewards;
- Lack of information tools to support decision making;
- Failure to integrate true costs and benefits of nature; and
- Lack of financial resources to support conservation and partnerships.

In addition to these seven barriers, interviewees and workshop participants identified the following two areas of concern:

- Inadequate integration of decision making across sectors and land-uses and among regulatory processes; and
- Constraints and incentives relating to the resource disposition and tenure systems.

These two topics are related to several of the barriers identified by the NRTEE. They warrant special attention, however, because of their obvious importance to stakeholders and because the defining features of the AI-Pac FMA include the multitude of land and resource uses and the presence of extensive and often overlapping industrial tenures.

While many of these barriers are fairly general in nature, they highlight some of the policy ‘fundamentals’ that arguably must be in place for successful implementation of specific management objectives designed to conserve natural capital within a sustainable development framework. All of the interviewees for this case study commented in detail on the cross-cutting barriers to conservation that they considered most important. In some cases, they also provided detailed illustrations of these barriers within the AI-Pac FMA and suggested regulatory and fiscal measures to address them. These barriers were also addressed by stakeholders at the case study workshop.

⁹ NRTEE, *supra* note 1, pp. 39-41.

4.1. Lack of Political Will and Accountability by Governments

‘Political will’ and ‘accountability’ are, of course, axiomatic requirements for effective, sustained and democratically responsive initiatives in any area of public policy. The NRTEE identified lack of political will and accountability as the first barrier to conservation in its report on *Securing Canada’s Natural Capital*. There was virtual unanimity among stakeholders interviewed for this case study that effective action to conserve natural capital in the AI-Pac FMA will require political commitment – including a willingness to make ‘hard’ choices – and institutional arrangements that ensure the accountability of government and other stakeholders for their decisions. Many interviewees and workshop participants also noted room for improvement in these areas within the AI-Pac FMA.

Characterizing the problem as ‘lack of political will’ and ‘lack of accountability’ may, at first glance, appear to invite a descent into an adversarial and subjective questioning of motives and allocation of blame. It was evident from the interviews and the workshop, however, that a measured and objective discussion of political will and accountability is possible in relation to resource and environmental management within the AI-Pac FMA. A number of stakeholders made it clear that, in their view, attention to both of these issues is an important prerequisite to progress in conserving natural capital. They also provided specific and well-documented concerns in each of these areas. Comments can be grouped into four broad categories.

4.1.1. Transparency about political choices and their implications

First, some stakeholders noted that the perceived lack of ‘political will’ to make greater progress on conserving natural capital may reflect a conscious – although not always clearly articulated – choice by government to favour economic objectives over environmental ones. As noted above, there are high value surface and subsurface resources within the AI-Pac FMA. It is also evident that the Government of Alberta relies heavily on natural resource revenues to fund programs, maintain low tax rates, and progressively pay down the public debt. Resource development is also a significant source of revenue for the federal government. A number of interviewees argued that the governments appear overwhelming preoccupied with short-term revenue maximization, apparently (in the view of some interviewees) at the expense of other values. In this context, the political reality may be that the governments are reluctant to forego any significant amount of resource revenue in order to conserve more natural capital in all or part of the AI-Pac FMA.

Interviewees who saw the political and economic calculus guiding government decision-making in these terms raised two further points. The first is that the options for conserving natural capital will obviously be constrained, although there are undoubtedly some regulatory and fiscal measures that could achieve gains in conserving natural capital without significantly affecting resource revenues, at least over the longer term. The second point made by some interviewees is that government should be more forthright in stating its priorities and assuming responsibility for the consequences of its choices. This latter point highlights an important linkage between political will and accountability.

In particular, several interviewees expressed the view that government has created incentives and regulatory requirements that drive resource development at the expense of natural capital, while maintaining publicly that all values can be accommodated on the landscape. There is clearly a

perception among some stakeholders from both industry and the environmental community that, when the inevitable trade-offs become evident, project proponents and other stakeholders are left to ‘fight it out’ while government steps aside and, in effect, avoids being held directly accountable for its policy direction. In other words, governments are seen by some stakeholders as aggressively pursuing an economic development agenda within the AI-Pac FMA while avoiding, at least to some extent, accountability for the resulting environmental trade-offs.

This perception is particularly troubling in a context where multi-stakeholder groups have been attempting to reach consensus on how to balance economic, social and environmental objectives and where project proponents feel that they are ‘on the hook’ in regulatory and stakeholder processes when values collide. Without a clear indication of the extent of ‘political will’ within government to move forward in certain directions, there is a real risk of growing frustration among the non-governmental stakeholders who are trying to resolve complex issues but do not understand the real ‘rules of the game’ that government is playing by. *An important general lesson from the AI-Pac FMA case study is therefore that government should be transparent and accountable when setting policy direction and making choices between economic development and the conservation of natural capital. Without this transparency and accountability, informed democratic choice becomes difficult and stakeholders may be thrust into conflicts that they cannot satisfactorily resolve.*

4.1.2. Political will to follow through on explicit policy direction and multi-stakeholder processes

A second area of concern relating to political will and accountability is what many interviewees and some workshop participants identified as a systematic failure of the Government of Alberta to follow through on important strategic policy directions and on the implementation of recommendations from multi-stakeholder processes that it has initiated or supported. This pattern is seen by some stakeholders as an important barrier to progress in conserving natural capital within the AI-Pac FMA and elsewhere in Alberta because it has occurred in relation to directly relevant areas of public policy and because it is seen as undermining the credibility and usefulness of multi-stakeholder processes, which are generally seen as necessary to manage cumulative effects and conserve natural capital in a multi-use area such as the AI-Pac FMA. Two specific examples were raised in a number of interviews.

The first example is the Alberta Forest Conservation Strategy. This extensive multi-stakeholder process addressed issues that are directly relevant to the conservation of natural capital in the AI-Pac FMA and throughout Alberta’s boreal forest. It produced a series of recommendations for aligning provincial law and policy with principles of sustainable and ecosystem-based forest management, an approach that several interviewees saw as a promising basis for conserving natural capital on the working landscape. While a detailed examination of this process and its outcome is beyond the scope of this case study, it is significant that interviewees from industry, government and environmental organizations all commented on the government’s failure to implement the recommendations that emerged from this process. One interviewee with specific knowledge of this process stated that opposition was already mobilized within government to kill the stakeholder recommendations before they were officially submitted. The document that was

finally endorsed by government, *Alberta's Forest Legacy*,¹⁰ was characterized by several interviewees as being significantly weaker than the recommendations that emerged from the multistakeholder process.

The second example of lack of political will that was identified by interviewees is the apparent failure to follow through on the Government of Alberta's recent integrated resource management (IRM) initiative.¹¹ Once again, the policy issues are directly relevant to conservation of natural capital in the AI-Pac FMA and elsewhere – and will be returned to below. The IRM initiative began with a statement of government policy, *Alberta's Commitment to Sustainable Resource and Environmental Management*,¹² that specifically endorsed an integrated approach to decision-making. The establishment within Alberta Environment of the Integrated Resource Management Branch, the mandate of which was to promote IRM, followed from this commitment. The cornerstone of this initiative was the development of 'regional strategies', the first of which was the multi-stakeholder Northern East Slopes (NES) Strategy.

The interviews for this case study indicate, however, that there is widespread consensus among stakeholders that the Alberta Government lacked the political will to carry through with these important initiatives. One interviewee with first-hand knowledge of this process stated that key resource management departments successfully resisted the IRM initiative despite the fact that it reflected official government policy. As a result, officials from the IRM Branch were, in the interviewee's words, left to argue with officials in other departments without any effective support at the higher bureaucratic and political levels. Another interviewee commented that the underlying problem might relate to the absence of a policy framework for reconciling provincial and local objectives and for evaluating the resulting trade-offs. The IRM Branch was apparently disbanded in the spring of 2004 and the people interviewed for this case study were uncertain what measures, if any, would be taken to implement Alberta's commitment to IRM.

As for the NES Strategy, the consensus among interviewees who commented on this issue was that opposition from important resource management departments – notably Alberta Sustainable Resource Development and Alberta Energy – has effectively blocked implementation of the multi-stakeholder recommendations. If this assessment is accurate, it will be a disappointment to the stakeholders who devoted considerable time and effort to the process and may be a further set-back to confidence in this approach to consensus-building around difficult land-use issues in Alberta.

The perception that the Government of Alberta was unwilling to follow through on the Alberta Forest Conservation Strategy and the IRM initiative is particularly relevant to this case study because of its implications for two areas of public policy – sustainable forest management and integrated resource management – that are widely seen as important for the conservation of natural capital on working landscapes. Furthermore, these experiences may undermine the credibility of important ongoing initiatives within the AI-Pac FMA, notably the provincial government's Regional Sustainable Development Strategy (RSDS) and the stakeholder-led Cumulative Effects Management Association (CEMA). *The general lessons are simple but*

¹⁰ This document is available at <http://www3.gov.ab.ca/srd/forests/fmd/legacy/pdf/legacy.pdf>.

¹¹ Information on the IRM initiative can be found at <http://www3.gov.ab.ca/env/irm/index.html>.

¹² Government of Alberta, *Alberta's Commitment to Sustainable Resource and Environmental Management* (Edmonton: March 1999).

important. Progress in addressing complex land-use issues through internal government initiatives and multi-stakeholder processes should be backed by a political commitment to follow through at the implementation stage.

4.1.3. Lack of an institutional focal point for accountability

The third issue relates directly to the lack of institutional accountability as a barrier to the conservation of natural capital. Interviewees and participants at the workshop commented on the fact that many departments and agencies make decisions affecting natural capital and other values in the AI-Pac FMA, but there is no single land and resource manager that is accountable for the cumulative effects – including the effects on natural capital – of these decisions. For example, decisions on resource dispositions (e.g., mineral rights issuance, forestry quota allocations and FMAs, etc.) and authorizations for specific projects and activities (e.g., well licences, pipeline licences, approvals for seismic programs, issuance of licences of occupation for roads) are made within several departments and agencies, each of which has its own sectoral mandate.

Although accountability for cumulative effects falls in certain respects within the mandate of Alberta Sustainable Resource Development (ASRD), this department does not have authority over many of the decisions that contribute to these effects. Thus, the accountability of ASRD for multiple use, non-market benefits and other important land-use issues is not supported by a compatible authority structure for making decisions. This topic is further discussed under business planning in Part 3.

There are, of course, some mechanisms for inter-departmental coordination, including the Sustainable Development Coordinating Council of deputy ministers. However, interviewees who commented on this issue generally felt that these forums were used primarily for information exchange, as opposed to exerting significant influence to integrate and achieve collective accountability for decision-making by the respective departments and agencies.

Lack of accountability as a barrier to the conservation of natural capital in the AI-Pac FMA can therefore be characterized as a structural issue. It is a direct result of fragmented legal and administrative arrangements that tend to focus decision-makers on relatively narrow issues without providing an overarching entity that is directly and visibly accountable for the cumulative landscape-level implications of these decisions for ecological processes and natural capital. This barrier is part of a cluster of issues related to the lack of integration in resource and environmental management, a topic addressed in more detail below.

4.1.4. Absence of effective accountability mechanisms in legislation

The final point concerning political will and accountability is that some interviewees highlighted the lack of formal accountability mechanisms within legislation governing land and resource use in the AI-Pac FMA. For example, one interviewee commented on the absence of clear requirements or targets relating to biodiversity protection, the protection of key ecological areas, the monitoring of impacts and reclamation efforts, the management of cumulative effects, and other issues that are critically important for the conservation of natural capital. The flexibility and discretion built into Alberta's legislation and policy, it was argued, make it very difficult to

assess the performance of government and industry in ways that will hold decision-makers accountable.

4.2. *Inadequate Integration of Decision-Making Across Sectors and Land Uses and Among Regulatory Processes*

The interviews for this case study and the comments received at the stakeholder workshop suggest a broad consensus that the absence of integrated decision-making across sectors and land uses and among the stages of decision-making that make up the regulatory regime is a significant barrier to conserving natural capital in the AI-Pac FMA. This issue was not identified by the NRTEE as a separate barrier in *Securing Canada's Natural Capital*, although it was referred to at various points in that report, notably in relation to conservation planning.¹³ Since the principal human impacts on natural capital in the AI-Pac FMA stem from the cumulative effects¹⁴ of multiple activities, an integrated approach to land and resource management is essential in order to set and achieve landscape-level objectives related to the conservation of natural capital. This approach is commonly referred to as integrated landscape management (ILM) or integrated resource management (IRM).

The basic characteristics of ILM can only be briefly summarized here, although more detailed discussions of this issue are available.¹⁵ ILM involves decision-making that is integrated across the full range of sectors and activities occurring on the landscape, among the various stages of decision-making that make up the regulatory regime,¹⁶ and over meaningful spatial and temporal scales. Improved integration can be achieved through inter-industry cooperation, at the operational level of regional resource and environmental management, through discrete changes to resource management and regulatory processes (e.g., rights disposition or environmental assessment processes), or through structural changes to the legal and institutional framework for decision-making. Throughout the regulatory regime, a wide variety of integrative mechanisms could be used to promote ILM.

ILM has received considerable attention over the past several years at the national level, within Alberta, and in relation to the AI-Pac FMA. A national workshop that examined this issue in 2003¹⁷ has resulted in an ongoing initiative by leading stakeholders from industry, government

¹³ NRTEE, *supra* note 1, pp. 45-48, 59-65.

¹⁴ The assessment and management of cumulative effects was an important topic of discussion at the workshop in Fort McMurray.

¹⁵ See, for example, Steven A. Kennett, *Integrated Landscape Management in Canada: Initial Overview and Analytical Framework*, Report prepared for the International Council on Mining and Metals, 9 February 2004 (available from the author at the Canadian Institute of Resources Law or from Tony Andrews, Executive Director, Prospectors and Developers Association of Canada).

¹⁶ The principal stages include: (1) strategic policy direction regarding land and resource use; (2) Land-use planning (including protected areas designation, 'integrated' or comprehensive planning, and sector-specific planning); (3) Issuance of resource rights (e.g., issuance of legal rights to forestry operators, oil and gas companies and other users of land and resources); (4) Review and approval of proposed projects and activities (e.g., environmental assessment); and (5) Detailed regulation of projects and activities.

¹⁷ *Report on the National Landscape Management Workshop*, held at Chateau Cartier, Aylmer, Quebec, April 23-25, 2003. This workshop was sponsored by Wildlife Habitat Canada, the Prospectors and Developers Association of Canada, The Canadian Forest Products Association of Canada, Parks Canada and Environment Canada.

and non-governmental organizations that is directed to promoting ILM throughout Canada.¹⁸ Within Alberta, the Alberta Chamber of Resources has established an ILM program that has, among other things, encouraged inter-industry cooperation to reduce the industrial footprint and contributed to the establishment of an Industrial Research Chair in ILM that is held by Dr. Stan Boutin at the University of Alberta.¹⁹ Al-Pac has been a driving force in this program. As noted above, the Government of Alberta has endorsed an integrated approach to resource and environmental management (IRM) at the level of strategic policy, although initiatives in this area have yet to yield significant results.²⁰ Finally, the need for improved integration in decision-making has been widely recognized in relation to the Al-Pac FMA. For example, a chapter on the Al-Pac FMA that was included in a recent book entitled *Towards Sustainable Management of the Boreal Forest* concluded as follows:

“The next challenge to address in the achievement of sustainable forest management will be to deal effectively with the cumulative impacts of natural disturbances, forest management, and other overlapping (often competing) land uses, such as the activities of the energy sector. ... Integrating industrial activity across sectors will ultimately require regional management through combined actions of government, industry and the public. This is now the big challenge for achieving truly sustainable forest management in Alberta.”²¹

In order to reconcile multiple human land uses with the conservation of natural capital on a working landscape such as the Al-Pac FMA, the need for ILM is virtually self-evident.

For many workshop participants and people interviewed for this case study, the lack of integration in decision-making on land and resource use is the primary barrier to conserving natural capital on the working landscape within the Al-Pac FMA. The absence of integrated decision-making was also identified as an important barrier to achieving other economic and social objectives that require decision-makers to address resource-use conflicts and cumulative effects.

The workshop and interviews for this case study confirmed that the lack of integrated decision-making across resource sectors and among other activities on the land base is a pervasive problem in the Al-Pac FMA. Most components of the regulatory regime are still based on sectoral ‘silos’ that impede efforts to set landscape-level objectives and manage cumulative effects. Workshop participants commented on the impediments to integration that are the result of the competing mandates and conflicting objectives of different regulatory authorities.

¹⁸ Information on the Landscape Management Coalition can be obtained from the co-chairs of this initiative, Jean Cinq-Mars (President, Wildlife Habitat Canada) and Tony Andrews (Executive Director, Prospectors and Developers Association of Canada).

¹⁹ See: http://www.acr-alberta.com/Projects/ILM_background.htm;
<http://www.biology.ualberta.ca/boutin.hp/boutin.html>.

²⁰ See, for example, Steven A. Kennett, *Integrated Resource Management in Alberta: Past, Present and Benchmarks for the Future*, CIRL Occasional Paper #11 (Calgary: Canadian Institute of Resources Law, February 2002); Steven A. Kennett, “Reinventing Integrated Resource Management in Alberta: Bold New Initiative or ‘Déjà vu all over again?’” (2002) 77 *Resources* 1.

²¹ Daryll Hebert et al., “Chapter 22 – Implementing sustainable forest management: some case studies” in Phillip J. Burton et al., eds., *Towards Sustainable Management of the Boreal Forest* (Ottawa: National Research Council of Canada, 2003) pp. 919-920.

Interviewees and workshop participants also confirmed that integrated planning is a key requirement for conserving natural capital within a sustainable development framework. Deficiencies in land-use planning within the AI-Pac FMA are examined below as a separate barrier to the conservation of natural capital. It was clear from the interviews and the workshop, however, that the need for integration goes beyond the land-use planning stage of decision-making. In particular, the lack of integration at the level of broad land-use policy and among the rights issuance, project review and regulatory stages of decision-making was also identified as problematic.

A recurring theme in interviews and in comments from some of the workshop participants was the apparent ‘disconnect’ within government between decision-making on resource dispositions and the efforts to manage the individual and cumulative effects of industrial activities in order to conserve natural capital and achieve other land-use values. Many stakeholders commented specifically on what they saw as the single-minded pursuit revenue maximization and accelerated development that, in their view, is driving the mineral leasing system operated by Alberta Energy. Some stakeholders also commented on an apparent ‘disconnect’ between the forestry and the fish and wildlife components of the Department of Sustainable Resource Development.

The requirements and incentives embedded in the leasing and tenure regimes are reviewed in more detail below. For present purposes, the key point is that resource dispositions set the development process in motion, but are made without an open and transparent review of cumulative effects issues and environmental impacts. For both the forestry and the energy sectors, resource disposition decisions have little or no public input. Furthermore, as noted by many stakeholders, the disposition processes for these two sectors are completely separate and lack effective coordination.

An inter-departmental administrative mechanism called the Crown Mineral Disposition Review Committee (CMDRC) is apparently intended to review proposed mineral dispositions for environmental concerns before they are posted. However, two interviewees who commented on this process referred to it as ‘a joke’ and ‘a bloody farce’. The short time for review, a lack of human resources, an inadequate information base for evaluating proposals, and the CMDRC’s purely advisory function (i.e., lack of decision-making authority) were identified as problems. It was also noted that this process is not transparent or open to public involvement. Furthermore, Alberta has nothing approximating the ‘pre-tenure planning’ requirements that are discussed in the case study report on the Muskwa-Kechika Management Area in British Columbia. One interviewee stated, however, that the CMDRC process is effective in identifying all environmental concerns associated with any proposed mineral lease.

The lack of integrative mechanisms at other stages of decision-making was also noted in several interviews. The Alberta Energy and Utilities Board has issued a series of decisions over the past several years calling for guidance on integrating individual project approvals for oil sands projects within an overall framework for managing regional cumulative effects.²² All

²² See, for example: EUB, Application by Syncrude for the Aurora Mine, EUB Decision 97-13, 24 October 1997; EUB, Application by Suncor Energy Inc. for Amendment of Approval No. 8101 for the Proposed Project Millennium Development, Addendum B to EUB Decision 99-7, 23 July 1999; EUB, Petro-Canada Oil and Gas Steam-Assisted Gravity Drainage Project, Mackay River Project, Athabasca Oil Sands Area, EUB Decision 2000-

interviewees who commented on this issue acknowledged that the Cumulative Effects Management Association (CEMA) process has yet to deliver this framework, although large projects continue to be proposed and approved.

Failure to achieve effective integration of the regulatory processes that govern operational planning was also noted. One interviewee commented that some efforts are made by government to coordinate energy and forestry activities when proposals from both sectors arrive simultaneously, but that this process is ad hoc and is relatively ineffective in achieving integration when proposals and operational plans arrive sequentially. The different planning cycles and time frames of energy and forestry operations, driven by both economic and regulatory factors, were identified in many interviews as barriers to operational coordination.

Several interviewees commented on the lack of integration in decision-making regarding roads and other disturbances (both linear and non-linear). The interviews suggest that all stakeholders recognize the importance of this issue and that some progress has been made through inter-industry cooperation and the efforts of government land managers. However, interviewees indicated that there are still instances of parallel roads being developed by different sectors and a failure to achieve optimal infrastructure coordination because of different planning horizons. Barriers and policy options relating to the management of linear disturbances are returned to later in this report.

Lack of integration within the forestry sector – between the FMA holder and embedded quota holders – was also raised in several interviews. There is currently no single management regime that applies to all forestry operations within the AI-Pac FMA. Several interviewees indicated that efforts to improve coordination of forestry operations in order to save costs and reduce the extent and duration of industrial activities are underway between the respective companies. The issue of establishing a single land manager for the forest resource is also, apparently, under consideration as part of the review of tenure arrangements and related issues by the Department of Sustainable Resource Development. No details on possible or proposed changes were forthcoming from the interviews.

A comprehensive and detailed examination of regulatory options to achieve integrated landscape management in the AI-Pac FMA is beyond the scope of this case study. Several of the interviewees who addressed this topic noted the apparent collapse of the Alberta Government's recent IRM initiative and were uncertain about what measures, if any, might be adopted to promote integration. A couple of interviewees indicated that there is renewed policy direction from senior government officials to improve coordination between the key departments of Energy, Sustainable Resource Development and Environment. However, these interviewees did not provide specific details on the policy, institutional and legal instruments that might be used to achieve this objective and overcome long-standing barriers to integration.

It is, however, possible to identify several general regulatory options that could be adopted to improve integration. Integrated land-use planning, a topic addressed in the following section, is generally seen as a potentially effective integrative mechanism. One interviewee commented

50, 14 July 2000; TrueNorth Energy Corporation Application to Construct and Operate an Oil Sands Mine and Cogeneration Plant in the Fort McMurray Area, EUB Decision 2002-089, 22 October 2002.

specifically that the integrative value of planning would be enhanced if it establishes clearly defined and, where possible, quantifiable objectives, thresholds and limits for land and resource use. Furthermore, the effectiveness of planning as an integrative mechanism clearly depends on its ability to guide and constrain decisions at the resource disposition, project review and regulatory stages for the full range of land and resource uses. A pre-tenure review and planning process, as has been adopted in the Muskwa-Kechika Management Area in British Columbia, illustrates how planning can be tied to rights issuance and subsequent resource development.

The logic of integration could also be built into project review processes and regulatory processes to ensure coordination across sectors and land uses and to provide a framework for cumulative effects management. Regulatory integration in areas such as operational planning requirements and reclamation could also be implemented.

Several interviewees and workshop participants argued that a new governance model is required to manage land and resource use in the AI-Pac FMA and similar areas. Integration could be promoted by establishing a single agency charged with overall landscape management or by combining certain functions across all sectors (e.g., establishing one rights issuance agency that would allocate all industrial tenures on the landscape and another body that would conduct all environmental assessments for major projects). For example, some workshop participants suggested that a ‘Cumulative Effects Agency’ could be established.

The ‘single agency’ governance model could be implemented through a central, arm’s length agency or it could follow a bottom-up approach that would empower local stakeholders and land managers to define landscape-level objectives and oversee their implementation. Either approach would allow for broad political direction (and accountability) for land-use policy, but would insulate day-to-day decisions from direct political control. Specific suggestions included a provincial land-use commissioner or the establishment of delegated administrative authority, perhaps on a regional level. The result, ideally, would be an increased ability of the land manager to adopt a long-term perspective and make the difficult choices that are required to conserve natural capital on working landscapes.

The single agency model is used for federal lands in the United States that are managed, respectively, by the Bureau of Land Management and the U.S. Forest Service. Workshop participants also identified the Tennessee Valley Authority as an example of a ‘central power base’ with broad management authority in a defined geographic area. The Northwest Power Planning Council in the Columbia River basin is yet another U.S. example of this type of institutional arrangement. There are clearly both advantages and disadvantages associated with these types of management agencies. A thorough review of this topic is, however, beyond the scope of this case study. Nonetheless, this approach has the obvious advantage of providing a central point of accountability for setting and achieving landscape-level objectives and it could provide greater institutional continuity over time.²³ It would therefore constitute a marked departure from the current situation where the future state of natural capital in an area such as the AI-Pac FMA is, in important respects, determined through a series of largely independent and uncoordinated decisions that are made within sectoral and project-specific contexts.

²³ The departments and agencies responsible for environmental and resource management in the Government of Alberta have undergone numerous departmental and administrative reorganizations over the past couple of decades.

The interviewees for this case study did not comment in detail on how realistic this option is for Alberta. In fact, the need for structural integration to achieve ILM may not be widely recognized. Some stakeholders continue to be involved in processes that are intended to address cumulative effects and broader landscape-level issues but that do not tackle directly the obstacles to integration that are built into the current regulatory regime. For example, one interviewee noted that CEMA was charged with developing elements of a new ‘environmental management system’ for the oil sands area and that the intent was to hand this system over to government for implementation. However, this interviewee stated that the structural obstacles to implementing such a system – notably the lack of an institutional ‘home’ for it within government – have not yet been addressed. Designing a management system without considering the need for a comprehensive, authoritative and integrated institutional structure to ensure implementation may be a recipe for frustration and failure.

4.3. Lack of Conservation Planning at a Landscape Level

The lack of conservation planning at a landscape level was identified by the NRTEE as a general barrier to the conservation of natural capital across much of Canada. The interviews and workshop conducted for this case study left no doubt that many stakeholders see this barrier as particularly relevant to the AI-Pac FMA. The general case for integrated landscape planning is described in *Securing Canada’s Natural Capital* and will not be repeated here.²⁴ Stakeholders’ comments on the state of planning within the AI-Pac FMA can be summarized as follows.

An Integrated Resource Plan (IRP) has been completed for the Fort McMurray area and was recently amended to allow for oil sands development affecting a wetland complex that had previously been designated for protection.²⁵ This IRP is a product of a long-standing provincial government program that, as one interviewee noted, was considered ‘state of the art’ in the 1970s. Several interviewees noted, however, that the Alberta government’s commitment to integrated resource planning has faltered over the past couple of decades and that the IRP process was largely dismantled in the 1990s through cutbacks and administrative re-organizations. There was a broad consensus among the stakeholders from industry and environmental groups who commented on integrated resource planning in Alberta that this process is currently inadequate.

Views on the required changes ranged from support for reinvigorated and slightly modified version of the IRP model to arguments that the planning process requires a fundamental re-thinking. Weaknesses in Alberta’s IRP process have been discussed in the literature and were raised in the interviews. The principal points raised in the context of this case study included:

- The tendency of IRPs to adopt a ‘multiple use’ approach that sets broad management objectives and provides little specific guidance on priorities and trade-offs;
- The inadequacy of a zoning system that simply identifies permitted and not permitted uses in a context where natural capital and other land-use values are affected by cumulative effects relating to the intensity, as well as the type, of activity;

²⁴ NRTEE, *supra* note 1, pp. 45-56.

²⁵ Government of Alberta, *Fort McMurray-Athabasca Oil Sands Subregional Integrated Resource Plan* (Edmonton: 1996).

- The failure of the IRP to provide useful guidance on thresholds and other key issues (i.e., lack of assistance on the type of issues that are being addressed through CEMA);
- A perception by some stakeholders that the IRP does not constitute a meaningful constraint on development and that government will simply amend restrictions on land use in order to accommodate new projects; and
- Inadequate resources to fund planning and systematically update plans.

These concerns reflect criticisms of the IRP process that are well documented elsewhere.²⁶

Landscape-level planning in the case study area also occurs through AI-Pac's Detailed Forest Management Plan (DFMP). Several interviewees commented that AI-Pac is providing significant planning leadership for the area and that the DFMP addresses many issues that are relevant to integrated landscape management in general, and the conservation of natural capital in particular. However, it was also noted that this process cannot provide fully integrated landscape-level planning because of its sectoral nature and because of the broad range of relevant factors that are beyond the control of AI-Pac and of the government department with authority to approve the plan. In particular, the AI-Pac DFMP cannot adequately anticipate or direct oil and gas activity on the land base. Furthermore, coordination with a range of other land and resource users, including quota holders within the FMA, remains a challenge.

Another process that involved 'conservation planning' was Alberta's protected areas policy, Special Places 2000. A review of that process is beyond the scope of this case study. Special Places 2000 resulted in the designation of some protected areas within the boreal forest of northern Alberta. Interviewees from government, industry and environmental groups confirmed that the current government position is that protected areas targets have been met and that this process is now completed. This stance is a barrier to expanding the level of protection in the AI-Pac FMA, even if private agents were able to form contracts that neutralize development rights through conservation easement types of arrangements. This issue will be returned to below in the discussion of the establishment of protected areas as a management objective for the AI-Pac FMA.

Finally, the CEMA process could be characterized as a planning exercise since it is intended, in part, to develop thresholds for the management of cumulative effects in the oil sands area. Several interviewees commented that CEMA has yet to deliver the products that it was intended to produce and offered various explanations for the delay. One suggestion was that the process attempted to address too many issues simultaneously. Another interviewee commented that there are built-in incentives for delay as participants from industry attempt to secure approvals for their

²⁶ For commentary on the IRP process, see: Environment Council of Alberta, Policy Advisory Committee, *Our Dynamic Forests: The Challenge of Management*, A Discussion Paper Prepared for the Alberta Conservation Strategy Project (Edmonton: December 1990) p. 48; Oswald Dias & Brian Chinery, "Addressing Cumulative Effects in Alberta: The Role of Integrated Resource Planning" in Alan J. Kennedy, ed., *Cumulative Effects Assessment in Canada: From Concept to Practice* (Calgary: Alberta Association of Professional Biologists, 1994) pp. 312-316; Roger Creasey, *Cumulative Effects and the Wellsite Approval Process*, Thesis submitted to the Faculty of Graduate Studies in partial fulfillment of the requirements for the degree of Master of Science, Resources and Environment Program, University of Calgary, December 1998, pp. 78-80, 155-157; Steven A. Kennett & Monique M. Ross, "In Search of Public Land Law in Alberta" (1998) 8 *Journal of Environmental Law and Practice* pp. 151-159.

projects before limitations emanating from CEMA are in place. *Government, it was argued, should fix firm time lines and convey more clearly the message that a failure of stakeholders to deliver the required management tools will result in government developing these tools itself.* This type of threat, it was suggested, has helped to spur consensus-based processes in other contexts, notably Alberta's Clean Air Strategic Alliance (CASA). The comparison between CEMA and CASA was raised in a couple of interviews, with one interviewee commenting that current criticisms of CEMA resemble those directed at CASA during its early years.

The research and interviews for this case study do not constitute a thorough examination of past and ongoing planning exercises in the AI-Pac FMA. Nonetheless, they do confirm that *there is broad support for the use of integrated planning as a tool for identifying conservation values and formulating objectives for land and resource use that balance conservation with the social and economic components of sustainable development.* The design and implementation of an effective and efficient planning process give rise to a multitude of legal, institutional and policy issues. A review of the full range of options for establishing comprehensive land-use planning and integrating this process with decision-making at the resource disposition, project review and regulatory stages is beyond the scope of this case study. For a discussion of an existing landscape-level planning process, albeit one developed in a context that differs in important respects from the AI-Pac FMA, reference should be made to the case study report on the Muskwa-Kechika Management Area.

4.4. Constraints and Incentives Relating to the Resource Disposition and Tenure Systems

The resource disposition and tenure systems that apply to forestry and to the oil and gas industry within the AI-Pac FMA were identified in many interviews as important sources of barriers to the conservation of natural capital.²⁷ While resource tenures were not included in the list of general barriers in *Securing Canada's Natural Capital*, the NRTEE did comment on two of the key issues that were raised by interviewees for this case study: (1) the 'use it or lose it' requirements built into some tenure arrangements and (2) the absence of mechanisms to facilitate the surrender of resource rights by companies.²⁸

Dispositions and tenures on public lands in Alberta are granted for specific resources and services flowing from the land base and do not provide incentives (or opportunities) for disposition holders to manage for multiple benefits on the landscape. In addition, the departments that allocate dispositions have sector specific mandates and therefore government processes for allocating dispositions also fail to integrate multiple values. This situation has led to the general perception that resource disposition processes and tenure arrangements are primarily designed to promote the rapid development and full utilization of specific resources (e.g., oil, gas and fibre), without providing adequate flexibility to accommodate conservation objectives within a sustainable development framework. In particular, the pace and spatial distribution of development is driven by allocation decisions that, from the perspective of many stakeholders, reflect narrow economic objectives but have very significant impacts for natural

²⁷ For a discussion of this issue, see: Monique M. Ross, *Legal and Institutional Responses to Conflicts Involving the Oil and Gas and Forestry Sectors*, CIRL Occasional Paper #10 (Calgary: Canadian Institute of Resources Law, January 2002) pp. 13-22.

²⁸ NRTEE, *supra* note 1, p. 63.

capital and other values. Furthermore, the tenure instruments issued to holders of resource rights often constrain the ability of these companies to coordinate and adjust their activities in order to conserve natural capital.

This lack of flexibility is seen by some stakeholders as putting companies between ‘a rock and a hard place’ – the set of regulatory requirements and incentives designed to maximize development that are contained in the tenure regime on the one hand, and the pressure from some regulators, the public and, in some cases, the market to conserve natural capital and address other land-use values by reducing individual and cumulative impacts. For example, one interviewee from the energy sector stated that, in his view, the government’s resource disposition policy leads companies into areas where they arguably should not be operating – and then leaves them to try to sort out the resulting regulatory and stakeholder issues.

One important feature of both the forestry and the oil and gas tenure regimes is the ‘use it or lose it’ requirement. For example, forest management agreements require ‘full utilization’ of the resource and allow the government to reduce allocations and reassign resource rights in the event that a company does not make full use of merchantable timber. While there is apparently some room for negotiation in practice, this requirement has been a source of concern and uncertainty as forest companies address issues such as the establishment of ecological benchmark areas and the retention of structure in clear-cut stands and burned stands that are salvage logged. The ability of companies to undertake research, practice adaptive management in response to new scientific information, and respond to evolving stakeholder concerns is potentially constrained by this ‘use it or lose it’ approach to tenures.

In the oil and gas sector, the ‘use it or lose it’ approach is embedded in the five-year time limit for exploration activity on mineral leases for conventional oil and gas. While the short planning horizons and rapid development approvals in the oil and gas sector are commonly linked to market pressures and the ‘economics’ of the industry, many interviewees identified the regulatory time frame within the tenure regime as a key driver of this approach to development. Companies, it was argued, are often obliged to rush exploration and drilling activities in order to complete work before the expiry of their leases. As a result, they may find that measures to minimize impacts on natural capital through project-specific mitigation and coordination with other companies are too time-consuming.

Several interviewees also commented that the competitive bidding process for mineral rights makes long-term planning and coordination difficult because companies obtain a competitive advantage by keeping their interests and plans confidential. Furthermore, the policy of issuing conventional oil and gas leases for small areas and for specific subsurface strata can result in a multitude of fragmented and overlapping interests, further complicating the task of coordinating exploration and development so as to minimize impacts on natural capital. Several interviewees noted the contrast between this approach to conventional oil and gas development and the larger leases and longer time frames for planning that are used for oil sands projects. Not surprisingly, some of the best examples of inter-industry cooperation to minimize the industrial footprint on the AI-Pac FMA have involved AI-Pac and large oil sands companies.

The current disposition and tenure system for conventional oil and gas in Alberta was characterized by several interviewees as being designed to achieve two principal objectives: (1)

the maximization of revenue to government at the rights issuance stage; and (2) the rapid development of oil and gas reserves by establishing a highly competitive environment and preventing companies from holding onto undeveloped mineral rights. One interviewee also noted that the policy of offering mineral rights for small geographic areas facilitates rights acquisition by smaller companies that depend on the rapid development of their reserves. These companies, it was argued, face significantly different economic incentives than do the larger companies that have a variety of investment opportunities at any point in time and may be content to hold inactive leases for relatively long periods. Particularly as the western sedimentary basin matures, maintaining production levels will require finding and developing smaller reserves, a niche that may be best suited to smaller oil and gas companies.

Thus, while the tenure system may be “rational” from the perspective of maximizing the short-term benefits associated with individual resource sectors, some stakeholders see it as a significant barrier to the coordination and planning of development that is required to improve conservation of natural capital. Interviewees suggested several options for adjusting the tenure regime in order to increase companies’ flexibility to manage their operations so as to minimize individual and cumulative impacts on natural capital.

One suggestion was to lengthen the five-year time line for activity on conventional mineral leases, thereby allowing companies more time to plan optimal development from both economic and environmental perspectives. Longer time frames would also facilitate coordinated operational planning among oil and gas companies, forest companies and other land and resource users. Coordinated planning could reduce environmental impacts and costs to companies through measures such as the design of common transportation infrastructure, improved planning and sequencing of development in order to minimize disturbance (e.g., location of well sites in areas that will be harvested by forest companies), and the coordination of operations in order to minimize the total duration of industrial activity in an area.

Inter-industry cooperation could also be facilitated by moving to larger tenures in environmentally sensitive areas, thereby reducing the number of companies whose activities would have to be coordinated. Issuing mineral rights in larger blocks could also increase the flexibility of disposition holders to adjust the location and timing of their operations. Finally, this change in disposition policy would make it more likely that mineral rights would be held by large companies. As noted by a number of interviewees, larger companies may be more willing and able than smaller ones to adjust their operations to minimize adverse impacts on natural capital because of their greater human and financial resources, their technical expertise, and their concern with reputation. For example, several interviewees commented that smaller companies may not have the personnel to participate in inter-industry or multi-stakeholder planning processes or the expertise, equipment and money that is needed to adopt state-of-the-art techniques for minimizing impacts (e.g., low or no impact seismic).

Some interviewees argued that the tenure regimes should include formal mechanisms allowing companies to relinquish resource rights in order to achieve conservation objectives (e.g., offset areas, ecological benchmarks, etc.). From a corporate perspective, there are sometimes compelling reasons to forego development in an area where rights have been acquired in order to address stakeholder concerns, provide an offset for the effects of intense industrial activity in other areas, or establish a benchmark for evaluating the effects of development and the success

of mitigation and reclamation measures. Companies may be reluctant to surrender rights, however, if they thereby forfeit the money that they paid to the Crown to acquire those rights and if there is a risk that they will lose competitive advantage if the rights are subsequently re-issued to another company. The effectiveness of this technique for addressing stakeholder concerns will obviously be undermined if surrendered rights are subsequently re-issued by government.

Interviewees recognized that there is an important public interest at stake in any decision that would potentially reduce government revenues from development of a publicly owned resource. However, there is clearly some support for the development within the tenure regime of a more formal process for reviewing and implementing the surrender of resource rights when this option meets the needs of the various interested parties, including the rights holder and government. An explicit mechanism for addressing this issue would, it was argued by some interviewees, be preferable to the current *ad hoc* approach.

An issue relating to forest tenure that was raised in several interviews was the accounting for timber loss to fire, insects and disease when calculating annual allowable cut (AAC) and associated minimum cut levels. Some interviewees stated that current methods for calculating AAC do not adequately take account of fire, for example, with the result that some forestry companies will face progressively tightening wood supplies. The result could be the use of more intensive forest management, which might adversely affect some aspects of natural capital. Other interviewees maintained that periodic recalculations of AACs in conjunction with the forestry planning cycle reflect fire events and other changes in wood supply. A thorough examination of this issue is beyond the scope of this case study. Nonetheless, it is clear that *ignoring probable losses of wood to future forest fires essentially overestimates wood supply, thus increasing pressure on natural capital.*

Several interviewees indicated that the Government of Alberta is currently reviewing forestry tenure issues and is aware of the issues noted above. It was suggested that this review might include a reexamination of the *Forests Act*, something that a number of interviewees felt was long overdue. However, no specific details about the government's policy direction were revealed during the interviews. A detailed examination of the existing legal and policy regime from the perspective of conserving natural capital and the elaboration of a comprehensive set of regulatory options for tenure reform are beyond the scope of this case study. Additional discussion of the economic incentives embedded in tenure regimes is included in Part 3 of this report.

4.5. Key Stewards are Often Not 'at the Table'

Participation of key stewards 'at the table' was identified as an issue in the NRTEE report and was raised in several different contexts by interviewees and workshop participants. There was general agreement that stakeholder participation in decision-making is essential when addressing complex land-use issues and identifying ways to balance the conservation of natural capital with other objectives. In the context of the AI-Pac FMA, three main points emerge from the interviews and the workshop.

First, the case study illustrates that key stewards and stakeholders may not be 'at the table' because there is no 'table' or forum for involving them in decision-making. As noted above,

there is currently no integrated land-use planning process to engage all stakeholders in decision-making about land and resource use across the entire Al-Pac FMA. Similarly, government allocates subsurface and surface resources without public environmental reviews or other inclusive processes. Alberta also lacks the type of arm's length and independent monitoring agencies that have been established, for example, to provide expert and stakeholder oversight of the major diamond mining projects in the Northwest Territories.²⁹ *Lack of participation by key stewards may thus be the result of gaps in the institutional framework for integrated landscape management and situations where the decision-making process is closed to key stakeholders and to the public as a whole.*

Second, some interviewees and workshop participants stated that government itself is sometimes insufficiently engaged in multi-stakeholder processes. The CEMA process was identified in several interviews as a model of inclusive, multi-stakeholder involvement. A concern expressed by a number of stakeholders, however, was that the Alberta government is not taking the appropriate leadership role in this process and has not provided the participation by high-level officials and the commitment of financial and in-kind resources that is needed to facilitate effective decision-making and to ensure a genuine commitment by government to the process and its outcomes. One interviewee contrasted the Alberta government's relatively passive role in this process with the active involvement of the Government of British Columbia in the Muskwa-Kechika area. Another interviewee commented, however, that senior government officials are well briefed on the CEMA process and are fully supportive.

A thorough examination of the CEMA process could not be undertaken for this case study. However, comments on CEMA and other multi-stakeholder processes in Alberta suggest a broad consensus among interviewees and workshop participants that *the active participation by senior representatives of all stakeholder groups, including government, is essential to achieving effective decision-making at multi-stakeholder tables and to ensuring that the results of these processes have a reasonable prospect of being implemented by the ultimate decision-makers at the senior bureaucratic and political levels.*

Third, several interviewees and workshop participants commented specifically on the challenges of ensuring full and effective participation by Aboriginal peoples at the consultation and decision-making 'tables'. The issues include defining appropriate roles for Aboriginal peoples, government and industry in consultation processes, incorporating information regarding traditional land use and traditional ecological knowledge, and developing mechanisms that meet the varied needs of different Aboriginal communities. These issues are returned to below in the discussion of a specific management option that focuses on Aboriginal interests and involvement in managing the use of land and resources.

4.6. Lack of Economic Benefits and Incentives for Key Stewards

A lack of economic benefits and incentives was identified by the NRTEE as an important barrier to the conservation of natural capital. This barrier clearly relates most directly to fiscal issues, the topic of Part 3 of this report.

²⁹ For information on the Independent Environmental Monitoring Agency for the BHP-Billiton Ekati mine, see: <http://www.monitoringagency.net/default.htm>. For information on the Environmental Monitoring Advisory Board for the Diavik mine, see: <http://www.emab.ca>.

Interviewees were somewhat divided on the importance of this barrier within the AI-Pac FMA. Some stakeholders felt that a ‘business case’ already exists for certain measures, such as road sharing, that can reduce the footprint of industrial activity and thereby promote conservation of natural capital. Others argued that industry is facing increasing public demands to incorporate conservation objectives into planning and operations, without any fiscal incentives to compensate for additional costs that are incurred in doing so. For example, it was noted that companies that invest time and money in inter-industry cooperation to plan operations or that re-design roads and other disturbances in order to minimize impacts on natural capital do not receive any benefits in the tax and royalty systems.

It appears from the interviews that there are no explicit policy mechanisms within the AI-Pac FMA to recognize the economic value of natural capital that is conserved by this type of discretionary action, although cost savings may sometimes be sufficient to induce companies to undertake these initiatives. Interestingly, perhaps the most explicit use of fiscal incentives to promote behaviour that yields both conservation and economic benefits is AI-Pac’s waiver of timber damage payments for companies that undertake low impact seismic operations. Interviewees identified a number of specific areas where economic benefits and incentives could be provided to encourage stewards to conserve natural capital. These options are discussed below in relation to specific management objectives and in Part 3 of this report.

4.7. Lack of Information Tools to Support Decision Making

The importance of information to support decision-making was raised in many of the interviews and was discussed in some detail at the workshop, confirming the NRTEE’s conclusion that deficiencies in this area may be a significant barrier to the conservation of natural capital. Interviewees and workshop participants elaborated on this issue in several ways.

First, many stakeholders commented on the existing information base and the available tools to support decision-making. A strongly held view among some stakeholders is that more scientific information is urgently needed, notably regarding the impacts of development on certain elements of natural capital (e.g., biodiversity) and the corresponding thresholds, limits or targets for land use that would be appropriate for achieving specified conservation objectives. Several areas of scientific uncertainty were noted. The effects of forest fragmentation on certain species (e.g., neotropical migrants) and the role of fire in the natural disturbance regime were among the examples cited in interviews. On other issues, such as the impacts of linear disturbances on caribou, the evidence seems clearer. Overall, good science is seen as an important foundation for good decision-making. *Several interviewees specifically suggested that direct fiscal incentives in the tax or royalty regime should be provided to encourage companies to fund the necessary research.*

Some interviewees noted, however, that the AI-Pac FMA already has a relatively detailed information base when compared with many other areas. Several interviewees commented favourably on the extensive research program supported by AI-Pac and some other resource companies. Furthermore, the development of the ALCES[©] model for simulating land-use

scenarios was identified as a ‘best practice’ within the AI-Pac FMA.³⁰ Several interviewees stated that this type of scenario modeling is a revolutionary new management tool that allows decision-makers to evaluate the cumulative effects of multiple land uses over large spatial and temporal scales. Use of this type of tool, it was argued, should become standard practice for all stages of decision-making, from broad policy and planning decisions through to the resource disposition, project review and regulatory stages. One interviewee cautioned, however, that public involvement in planning processes might be impeded if the data and scenario modeling in these processes become too complex.

A second set of issues relates to the availability of existing information. Workshop participants and several interviewees argued that much of the information that is collected by companies, government agencies and regulators, stakeholder groups, Aboriginal organizations, university-based researchers and others is not readily accessible. They noted, for example, that government requires the submission of extensive information for project applications but could do a better job of consolidating and disseminating that information for use by other stakeholders. *One specific suggestion was for leadership from both orders of governments in linking databases and developing standards, data management protocols and communications infrastructure to facilitate information exchange.*³¹

Third, some stakeholders underlined the importance of linking information with actual decision-making. One interviewee commented that he only supported research that was directed to specific management issues and where there was a high probability that research results would be incorporated into decision-making. Several interviewees and workshop participants underlined *the importance of developing information feedback loops to support adaptive management*. The use of information thus relates to the broader issues of establishing two-way linkages between landscape-level planning with other decision processes that use or generate information (e.g., project review processes, operational monitoring for regulatory compliance).

Finally, several interviewees and workshop participants commented specifically on the need to incorporate traditional land-use studies and the traditional ecological knowledge of Aboriginal peoples into decision-making processes. One interviewee noted that it is essential not only to provide funding and other resources to undertake traditional land-use studies, but that Aboriginal communities also require assistance to develop the expertise and infrastructure (e.g., GIS capacity) that are needed to use the data from these studies effectively in consultation and planning processes involving industry and government. It was also noted that Aboriginal communities vary considerably in terms of their ability to undertake these studies and make effective use of the results. *Expanding and recording the information base of traditional knowledge and building capacity to use it effectively are essential if Aboriginal values and interests are to be more fully incorporated into decision-making directed to conserving natural capital and ensuring sustainable development.*

³⁰ AI-Pac was a principal sponsor of the development of ALCES and has actively promoted its application to land and resource management within the AI-Pac FMA. For more information on ALCES, see www.foremtech.com. Dr. Brad Stelfox, the scientist who developed ALCES, is a member of the team of consultants that conducted this case study. Dr. Stelfox was not involved in the interviews where stakeholders commented on the ALCES model.

³¹ See also, NRTEE, *supra* note 1, pp. 52-55.

4.8. Failure to Integrate True Costs and Benefits of Nature

The NRTEE's discussion of this barrier focuses primarily on issues such as the valuation and pricing of natural capital and the fact that the costs and benefits of nature are often inadequately reflected in important public and private decisions regarding land and resource use. These issues are addressed in more detail in Part 3 of this report.

4.9. Lack of Financial Resources to Support Conservation and Partnerships

In *Securing Canada's Natural Capital*, the NRTEE concluded that "the resources dedicated to conservation are clearly insufficient" and that governments in Canada "are falling steadily behind other nations, including the United States, in investing in natural capital."³² Several interviewees and workshop participants commented in detail on the negative effects of cutbacks in financial and human resources in the government departments responsible for land and resource management. It appears that staffing levels have generally failed to keep pace with the demands resulting from the increasing pace of resource development in the Al-Pac FMA. One interviewee noted that there was no shortage of innovative ideas to address management issues, but that government lacked the staff to develop and implement policy solutions. Another interviewee stated that key departments with conservation mandates are so swamped with project applications and specific regulatory issues that they have few resources to undertake broader policy and planning initiatives. The argument that the pace of development is outstripping the ability to manage it was also raised in the workshop.

The reliance on industry as the primary source of funding for CEMA process was also noted in several interviews. While interviewees from industry and environmental organizations who commented on this issue felt that some industry funding was appropriate, a more significant financial involvement from government was generally seen as desirable given the broader public interest that CEMA was charged with addressing. Furthermore, several interviewees expressed concern that a lack of financial commitment by government might be indicative of an overall lack of commitment to support the implementation of the CEMA recommendations. One interviewee noted, however, that direct funding from government was supplemented by in-kind contributions and that the funding from CEMA that is provided by large oil sands companies should be placed in the context of these companies' much larger expenditures on project-specific engineering and environmental assessment studies and the generous tax and royalty treatment that government has provided for their projects.

On the government side, several interviewees commented on the large revenue accruing to the province from resource development and the need to redirect more of that money to support the departments and agencies charged with managing the environmental and social implications of that development. *A more specific suggestion was to ensure that some specific revenue streams related to resource development – such as timber damage payments to the Crown – are dedicated to projects related to sustainable development and the conservation of natural capital as opposed to being absorbed within general revenue.* Several stakeholders also advocated tax reductions or other fiscal incentives to encourage greater investment by industry in science, research and development for technology, partnerships, and other initiatives that would promote

³² NRTEE, *supra* note 1, p. 41.

sustainable development and conserve natural capital. Others argued, however, that this type of expenditure should be viewed as a cost of doing business in the boreal forest, paid for by consumers of resource-based products rather than being subsidized by taxpayers.

4.10. Summary of Findings on Cross-Cutting Barriers to Conservation

The interviews and analysis for this case study confirmed the principal barriers to conservation that were identified by the NRTEE in *Securing Canada's Natural Capital*. The case study also identified the lack of integrated decision-making and several features of the resource disposition and tenure regimes as areas of concern. While these issues are obviously not unique to the Al-Pac FMA, the case study highlights compelling reasons to focus on the regulatory 'fundamentals' in the context of multiple and increasing demands on the land and resource base. *The most important general lesson from the regulatory component of the Al-Pac case study is that conservation of natural capital on this type of working landscape is difficult to achieve without the ability to address cumulative effects through integrated landscape management.*

5. Regulatory Barriers and Policy Options for Specific Management Objectives

This section of the report examines specific regulatory barriers and policy options associated with the management objectives identified in Part 1. These objectives are:

- Maintain total forest cover;
- Maintain the natural disturbance regime;
- Maintain old forest;
- Maintain key aquatic and hydrological features;
- Recognize and protect areas of traditional aboriginal use and value;
- Establish areas within the managed forest where human impacts are prohibited or severely reduced;
- Reduce linear disturbance density and manage human access; and
- Maintain terrestrial carbon stocks and sinks.

5.1. Maintain Total Forest Cover

Since much of the natural capital in the Al-Pac FMA is closely related to the forested landscape, maintaining total forest cover is a management objective that would achieve a range of conservation values. From a regulatory perspective, the first steps to achieving this objective would be to formally adopt it at the policy and planning levels and then to incorporate measures to minimize permanent losses of forest cover at all stages of decision-making. Monitoring and adaptive management would also be required to track changes in total forest cover over time and

respond appropriately. Interviewees and workshop participants identified two broad areas for regulatory initiatives aimed at reducing the industrial footprint in the Al-Pac FMA over space and time.

First, it is evident that reducing the amount of forest that is cleared for industrial operations would contribute to maintaining total forest cover. Several interviewees argued that greater flexibility in regulations governing well sites, for example, would permit companies to reduce the size of their footprint in some circumstances. Losses of forest cover could also be reduced through joint planning of industrial activities, as illustrated by inter-industry cooperation on road building and on the location of cut blocks, well sites and other facilities. It appears that there has already been considerable progress within the Al-Pac FMA in reducing the amount of forest cleared for seismic operations, although further improvements in this area are likely possible. This topic is examined below in the section on managing linear disturbances. Clearly, a range of fiscal and regulatory tools could be used to reduce the total area of forest cut by industry within the Al-Pac FMA.

The second area for regulatory initiatives is reclamation. Since some removal of forest cover is inevitable on a working landscape, effective reclamation is the key to maintaining total forest cover over the long term. Interviewees and workshop participants identified the following regulatory options for improving reclamation policy and practices within the Al-Pac FMA.

First, *reclamation standards could be strengthened and harmonized across sectors*. For example, several interviewees suggested changing reclamation requirements for oil and gas activities from ‘revegetation’ to reforestation – so that ‘reclaimed’ land grows trees, not grass.

Second, measures could be taken to increase spending on reclamation. One issue that was raised in several interviews was the use of the timber damage assessments (TDAs) that are paid by oil and gas companies to forestry companies and to the provincial government. Interviewees from the oil and gas sector argued that these payments are intended, at least in part, to cover reforestation costs. However, there is clearly a perception that TDAs disappear into ‘general revenue’ and are not systematically used to reclaim disturbed areas once oil and gas operations have been completed. Some interviewees felt that it was unfair to blame the energy sector for the long-term industrial footprint in areas where they have paid for reforestation through TDAs, but the forest companies and government land managers that received these payments have not undertaken reclamation. *Greater accountability for the use of TDAs was proposed as a means of ensuring that this money is in fact used for reclamation.*

It appears from the interviews, however, that there remains some confusion regarding the appropriate use of TDAs. One interviewee from the forest sector stated categorically that TDAs are intended simply to allow forest companies to replace lost fibre and that these payments should not be viewed as a source of funding for reclamation. Government action to clarify the intended purpose of TDAs would remove a source of contention between the two sectors and establish clearer lines of accountability for the reclamation of forested land that is cleared for oil and gas operations.

Interviewees and workshop participants also identified other regulatory and fiscal mechanisms that could be used to promote reclamation. These options are discussed in Part 3 of this report.

Given the intensity of industrial activity and other land uses in the Al-Pac FMA, it will likely be a challenge to set and achieve targets for maintaining total forest cover over the long term. Furthermore, it appears from some projections that the total forest cover in this area may decline in the future as a result of anthropogenic climate change. Nonetheless, there are clearly policy options available that could promote the conservation of natural capital through the retention of forest cover.

5.2. *Maintain the Natural Disturbance Regime*

Since fire has an important role in boreal forest ecosystems, maintaining or replicating the landscape patterns that result from natural disturbance due to fire can contribute to conserving natural capital. This regime and its ecological impacts may be altered by forest fire suppression and policies relating to timber salvage on post-fire landscapes. Several interviewees noted that there remains considerable scientific uncertainty regarding the characteristics and effects of fire-based disturbance in the boreal forest and the long-term impact of human activities, such as fire suppression, on this disturbance regime. Furthermore, there is scientific evidence that the natural fire regime in the boreal forest may be significantly altered by global climate change, further complicating efforts to manage resource development in order to maintain or approximate natural disturbance patterns.

Economic and social values clearly underlie human activities that modify natural disturbance patterns. However, Al-Pac and some other forest companies are undertaking research and experimenting with management options that are designed to retain landscape characteristics associated with natural disturbance regimes.³³ Several regulatory options could be used to promote this management objective within the Al-Pac FMA.

One option is to create large protected areas where natural disturbance regimes can operate without human interference. A challenge for this option that was noted earlier in this report is the large area that would be required to accommodate some disturbance events, such as the House River fire in 2002 that covered 250,000 hectares.³⁴ Furthermore, a policy of not suppressing fires within protected areas may conflict with the protection of timber interests and other values on adjacent land. Nonetheless, where large protected areas can be created they would provide a means of maintaining landscape-level disturbance patterns in the boreal forest.

Second, forestry regulations and practices could be altered to reflect, to the extent possible, the landscape dynamics and patterns associated with natural disturbance regimes. A specific suggestion is to modify policies relating to timber salvage from post-fire stands in order to maintain more of the natural structure. More generally, forestry practices that approximate natural disturbance patterns, to the extent possible, could be encouraged or required. This approach to forestry may require changes to regulatory requirements relating, for example, to the size of cut blocks and the length of rotations. A detailed review of the application of this model of forestry to the boreal forest and its implications for the existing regulatory regime cannot be undertaken for this case study.

³³ Hebert et al., *supra* note 21 at 911-915.

³⁴ See, <http://www3.gov.ab.ca/srd/whatsnew/features/021206b.html>.

5.3. Maintain Old Forest

Given the ecological value of old growth forest, maintaining the amount and distribution of this type of landscape within the range of natural variability is a management objective that could conserve some aspects of natural capital within the AI-Pac FMA. Interviewees identified several obstacles to implementing this objective and suggested possible policy options.

The most general obstacle is that there are no specific regulatory or mechanisms to accord value to old growth when making the full range of management decisions that affect land use in this area. This policy gap is an example of the general problem that natural capital is often undervalued – or not valued at all – in market-based and regulatory decision-making.

This apparent indifference to the value of old growth within a range of decision-making processes is coupled with what some interviewees characterized as explicit or implicit policy direction to harvest ‘mature’ or ‘over-mature’ stands as a priority. It was noted, for example, that priority harvesting of these stands is implemented through operational level planning by government managers and forestry companies.

The rationale for this approach, in economic terms, appears to be that the amount of merchantable timber in a stand begins to decline in ‘over-mature’ forests and that maximum fibre supply can therefore be extracted from a given area of forest if the harvest rotation removes stands before they have reached this stage. Old growth stands also tend to have high economic value because of the size of the trees. There is therefore a market incentive to harvest these areas. However, over time this harvest pattern will result in the reduction or elimination of older stands across a broad landscape, with a resulting cost in terms of natural capital (e.g., the biodiversity that depends on old growth). Interviewees suggested various policy options for promoting the conservation of old growth forests within the AI-Pac FMA. Several of these options have been referred to earlier and require only a brief comment here.

First, a combination of land-use planning and protected areas designation could be used to conserve areas of old growth within the AI-Pac FMA. Both planning and protected areas designation are discussed elsewhere in this report. There is obviously a range of planning mechanisms that could be used to reduce the impact of industrial activities on old growth forests within the AI-Pac FMA.

A particular challenge for the use of protected areas to conserve old growth is the highly dynamic nature of forest ecosystems within the AI-Pac FMA. Stands qualifying as ‘old growth’ are not particularly old when compared, for example, with the old growth temperate rain forests of the Pacific coast. Furthermore, the importance of fire in the natural disturbance regime means that large areas of old growth are periodically eliminated. Using protected areas to secure old growth within the natural range of variability could, therefore, require the establishment of very large areas that are off limits to industrial activity in order to accommodate large-scale natural disturbance over time.

Given the dynamic cycle of aging and regeneration of forests within the AI-Pac FMA, a more flexible land-use option could be used for conserving old growth within an integrated planning framework. So-called *‘floating’ old growth reserves could be established to ensure that, at any*

point in time, landscape-level targets for this type of stand are met. These targets could include not only an age range for ‘old growth’, but also variables such as patch size and distribution across the landscape. Target values could also embody the precautionary principle by including a safety margin to buffer the effects of ‘catastrophic’ disturbance events such as a series of particularly large forest fires. Over time, the size and location of these floating reserves could be adjusted to reflect changing age-class structure at the landscape level and to balance environmental and economic objectives.

Implementing this type of policy could overcome some limitations associated with conventional protected areas and thereby increase the ability to conserve old growth forest over ecologically significant spatial and temporal scales within a sustainable development framework for landscape management. However, it would clearly require a flexible and coordinated approach to planning forestry activities. In addition, maintaining certain features of old growth stands that may be important for their natural capital values – such as lack of fragmentation – would require attention to other land uses that may affect these areas. The benefits from establishing floating old growth reserves through forestry policy might, for example, be undermined if significant oil and gas development was allowed to occur within these areas. Oil and gas resources within floating old growth reserves would not, however, be ‘locked up’ for all time. A major fire or the maturing of stands in other areas would, at some point in time, result in the shifting of reserve status to other stands and the opening of the areas in question for industrial activity.

A second regulatory option is to modify policy that requires or directs forest companies to cut old growth as a priority. Sustained yield and maximizing the economic value of timber production should be explicitly weighed against the value of natural capital for purposes of establishing cut requirements. This change could be linked to a broader re-examination of forest tenure arrangements and operational planning, both of which were addressed above.

5.4. Maintain Key Aquatic and Hydrological Features

The principal obstacles to conserving natural capital associated with aquatic and hydrologic features of the landscape within the AI-Pac FMA are cross-cutting issues that have been addressed above: the lack of an integrated planning framework and the difficulty of managing cumulative effects given fragmented and incremental decision-making on land and resource uses. In particular, several interviewees commented on the need for integrated watershed planning and management. A recent joint EUB-CEAA decision also underlined the importance of watershed management, stating that “The Panel strongly encourages AENV [Alberta Environment] to work cooperatively with regional stakeholders and water licence holders to evaluate a process and establish a water management plan for the lower Athabasca River.”³⁵

Cumulative effects issues were also identified by stakeholders for specific types of activities. One interviewee noted that regulatory standards for stream crossings, for example, do not adequately address the management of cumulative effects. Another interviewee commented on the cumulative effects of roads on surface water flows and wetlands within the AI-Pac FMA, noting that linear disturbances can sometimes act as dams that impede natural drainage of surface

³⁵ *Report of the Joint Review Panel Established by the Alberta Energy and Utilities Board and the Government of Canada*, EUB Decision 2004-009, Shell Canada Limited, Applications for an Oil Sands Mine, Bitumen Extraction Plant, Cogeneration Plant, and Water Pipeline in the Fort McMurray Area, February 5, 2005, p. 31.

water and recharge of wetlands. Workshop participants also discussed the significance of cumulative effects for important aquatic features of the landscape.

Possible regulatory responses in this area run the gamut of options discussed elsewhere in this report. Establishing ‘set-aside’ or protected areas is one means of conserving natural capital associated with wetlands and riparian areas. Regulation of specific land uses could also achieve conservation objectives. One interviewee noted that road construction along moraines is less disruptive for surface water than construction in glacial out-wash and plains areas. Directing road development accordingly could be achieved through landscape-level planning and specific initiatives to manage linear disturbances. Interviewees also underlined the importance of riparian areas for natural capital and argued that protected areas designation and regulatory requirements should focus on these parts of the landscape. Improved reclamation and coordinated operational planning among industrial operators are other techniques that could be used to conserve natural capital by minimizing impacts on aquatic and hydrologic features of the Al-Pac FMA. Specific thresholds or limits for the disturbance of wetlands could also be established, recognizing that the elimination of these areas is in some cases irreversible.

Most interviewees and workshop participants did not comment in detail on the need for changes to specific regulations relating to water quality and quantity. However, specific concerns among Aboriginal peoples with water quality, toxic contamination of the food chain, fish tainting and related issues are clearly linked to questions about the adequacy of regulatory requirements and monitoring procedures governing industrial discharges into water.

There is also a relatively distinct set of water management issues relating to oil sands development within the Al-Pac FMA. In particular, interviewees stated that constraints on available water supply from the Athabasca River may affect large oil sands projects and raised concerns with the risks associated with tailing ponds. These issues have great local and regional importance, but are less prevalent across the boreal forest as a whole. For that reason, they are not examined in more detail in this case study.

Finally, the cooperative partnership between Al-Pac and Ducks Unlimited should be mentioned as one of the ‘best practices’ exemplified by this case study.³⁶ This partnership sets out a vision for conserving natural capital in the form of water quality and quantity and biodiversity within the Al-Pac FMA, focusing particularly on the wetlands and riparian areas that are important for biodiversity. The overall approach is to invest heavily in science in order to understand ecological functions and the impacts of human activities, establish ecological benchmark areas to provide a basis for assessing land-use practices, and promote watershed management as a ‘coarse filter’ approach to conservation.

5.5. Recognize and Protect Areas of Traditional Aboriginal Use and Value

Aboriginal peoples have an important and unique perspective on conservation of the natural capital because of the spiritual, cultural and economic importance of traditional lands to their way of life and identity. Their extensive ecological knowledge and land ethic qualify them to play a key role in relation to the conservation of natural capital. In addition, their constitutionally

³⁶ For information on this partnership, see: Ducks Unlimited Canada & Alberta-Pacific Forest Industries Inc., *Boreal Conservation Project Al-Pac FMA Area – Annual Progress Report Covering Period 08.27.2002 to 1.29.2004*.

entrenched Aboriginal and treaty rights entitle them to be active participants in decision-making processes that may affect these rights. As noted earlier in this report, interviewees and workshop participants commented on the inadequacy of Aboriginal participation in consultation and decision-making processes.³⁷ The principal barriers to the incorporation of Aboriginal perspectives and values into decision-making that were identified include:

- The lack of shared decision-making and meaningful consultation involving Aboriginal peoples;
- The lack of accessible information based on traditional land-use studies and the lack of funding and support for these studies;
- The absence of an integrated and effective land-use planning process where information on traditional land-use and related Aboriginal values can be integrated into decision-making;
- The failure to require systematic consideration of traditional land uses and traditional knowledge at key stages of decision-making (e.g., rights issuance, environmental assessment);
- The challenge of reconciling perspectives based on traditional knowledge with western science;
- The lack of funding and capacity building to enable Aboriginal participation in decision-making and multi-stakeholder processes; and
- The varying levels of capacity among Aboriginal communities to participate effectively in consultation and decision-making processes.

Some of these barriers relate directly to regulatory requirements for land and resource use, while others raise a broader set of cultural and socio-economic issues. Four principal policy options to address these barriers were noted in interviews and during the workshop.

First, increased financial and in-kind support from government and industry could be provided for traditional land-use studies and for the collection and documentation of traditional knowledge. One interviewee commented that this support should not only be directed to generating data, traditional land-use maps and other relevant information. Support is also required to build capacity within Aboriginal communities so that they can keep this information current and use it effectively in consultations, negotiations and regulatory processes involving government, industry and other stakeholders. Funding could be provided through specific government programs, industry-government-Aboriginal partnerships, or in connection with specific decision-making processes (e.g., planning processes). Interviewees indicated that some companies within the AI-Pac FMA have already taken useful initiatives in this area, but that more support is desirable.

³⁷ See the section entitled “Key Stewards are Often Not ‘at the Table’”.

A second policy option is to require the formal incorporation of information on traditional land use and Aboriginal values into all stages of decision-making, including land-use planning, rights issuance and environmental assessment. For example, project proponents could be required to address Aboriginal land uses and values in operational plans and in the documentation submitted for environmental assessment processes.

Third, policy and regulatory requirements could be enhanced in order to ensure ‘meaningful’ consultation with Aboriginal peoples at key stages of decision-making. Interviewees commented that the Government of Alberta is currently developing a policy framework for Aboriginal consultation. Since the legal obligation to consult rests primarily with the Crown, certainty regarding government’s role in this process is essential. Effective government consultation with Aboriginal peoples would also assist industry in defining responsibilities in this area.

Finally, the nature and extent of Aboriginal involvement in decision-making regarding land and resource were raised in some interviews and in the workshop. As one interviewee noted, ‘consultation’ means different things to different people – from simply informing Aboriginal peoples of development plans to recognizing an Aboriginal veto in relation to certain matters. Another interviewee drew a distinction between cooperation with Aboriginal peoples on management issues and formal co-management. Workshop participants noted the importance of considering Aboriginal rights and values at various stages in the decision-making process. Moving beyond minimal ‘consultation’ and towards the co-management end of the spectrum is an option that has potentially significant implications for the entire regulatory regime.

Adjustments to planning processes, rights issuance and tenure regimes, project review processes and regulatory decision-making could be required to properly accommodate Aboriginal rights and implement Aboriginal co-management of land and resources. Co-management models exist in various parts of Canada and could be adapted to circumstances in the AI-Pac FMA. Formal co-management could promote conservation of natural capital, although several interviewees commented that some Aboriginal peoples within the AI-Pac FMA are also actively pursuing economic development strategies that could, in some instances, conflict with conservation objectives.

5.6. *Establish Areas within the Managed Forest where Human Impacts are Prohibited or Severely Reduced*

The interviews for this case study suggest widespread agreement that protected areas can be effective tools for conserving natural capital. Several interviewees commented, however, on the limitations of this option for achieving some specific objectives (e.g., retention of a given forest age class distribution in a particular area) in a region where certain ecological attributes of a protected area can be changed significantly by the large forest fires that are an important part of the natural disturbance regime. It was also noted, however, that post-fire stands have important ecological values that can be conserved through protected areas designation.

Many interviewees supported the establishment of additional protected areas within the AI-Pac FMA, either to protect ecological values or to provide ecological benchmarks for evaluating the impacts of industrial activity and the effectiveness of mitigation techniques and reclamation. One interview noted that AI-Pac had proposed the protection of the Liege River watershed in the

northwestern part of the FMA as a strategy to achieve its goal of sustaining all species within its FMA area, a goal that is consistent with provincial direction to maintain species diversity. This would have added an additional 140,000 ha of protected areas within or adjacent to the FMA area. Some interviewees stated, however, that additional protected areas within the Al-Pac FMA are not required and that Alberta has already met its target for protection.

The principal barriers to this policy option that were identified by interviewees include:

- The high value of extractive resources in the area (e.g., conventional oil and gas, oil sands, timber, etc.), which means that the establishment of protected areas often has a high economic opportunity cost;
- The extensive resource tenures and ongoing resource allocation across the case study area, making it difficult to identify options for establishing protected areas that would not compromise existing resource tenures;³⁸
- The requirements for high levels of resource utilization in tenure instruments that leave little flexibility for reducing the size of the ‘working’ land base without changes to existing tenure regimes (e.g., the ‘use it or lose it’ requirement discussed above in the section on tenure regimes);
- The existence of considerable development (e.g., roads, well sites, pipeline rights of way, cut blocks, etc.) that may be inconsistent with protected areas designation and with the establishment of undisturbed ecological benchmark areas;
- The absence of a formal policy and process for considering candidate sites for protected areas; and
- The Alberta government’s position that it has fulfilled its obligation for protected areas through Special Places 2000, and its resulting lack of interest in permitting or facilitating the surrender of resource tenures by disposition holders in order to establish protected areas and benchmark areas.

All of these barriers relate to policy choices and the regulatory regime broadly defined.

Many interviewees noted the difficulty of establishing protected areas once extensive resource rights have been issued and development has occurred. While this situation is a fact of life within the Al-Pac FMA, it serves as a lesson for other areas of the boreal forest. It will be evident from the case study of the Muskwa-Kechika Management Area, for example, that comprehensive land-use planning, including the designation of protected and special management areas, is easier to achieve on a land base that is relatively free of industrial dispositions. *Other areas of Canada’s boreal forest may provide opportunities that no longer exist within the Al-Pac FMA for addressing the conservation of natural capital before options are narrowed or foreclosed by resource dispositions and development.*

³⁸ The extent of existing surface and subsurface dispositions in Alberta was a significant challenge for the Alberta Government’s protected areas policy, Special Places 2000.

Some interviewees commented on the implications of the case study's geographic boundary for consideration of protected areas. One argument was that protected areas adjacent to or close to the Al-Pac FMA could provide adequate protection for natural capital and serve as ecological benchmarks. Enlarging the geographic focus for protected areas designation could increase opportunities for trade-offs, facilitating the development of high-value resources within the Al-Pac FMA while protecting natural capital in areas that have lower economic value for resource development. Another interviewee cautioned, however, that the Al-Pac FMA is primarily within the boreal plain, a relatively flat area that is significantly different from the ecozones represented in surrounding protected areas. This person noted, for example, that while Wood Buffalo National Park is a large protected area close to the Al-Pac FMA, its ecological characteristics differ in important ways from the case study area. Furthermore, the significant range of natural variability for certain biophysical features within the Al-Pac FMA suggests that representative ecological benchmarks should be located relatively close to the impacts and reclamation activities that are being assessed.

This debate illustrates an important issue for the use of protected areas to conserve natural capital in the boreal forest. When considering the appropriate size and location of protected areas and the opportunities for trade-offs between protection and development, the geographic frame of reference can be important.

Many interviewees identified the absence of an ongoing protected areas policy in Alberta as the principal regulatory obstacle to implementing this management option. The Alberta Government's current position appears to be that the Special Places 2000 program has been completed, protected areas targets have been met, and this issue is now off the agenda. If this characterization of government policy is accurate, it is not surprising that efforts by Al-Pac and some other stakeholders to promote the establishment of additional protected areas and ecological benchmarks within the Al-Pac FMA have thus far been unsuccessful.

Several interviewees expressed concern about the adequacy of previous protected areas processes and targets – notably the extent to which representative examples of natural capital are in fact adequately protected in the Al-Pac FMA and across the boreal forest as a whole. Others noted that the argument for embedding ecological benchmarks within a working landscape reflects an evolution in thinking about sustainable forest management. In particular, several interviewees underlined the need for benchmarks to permit ongoing research on impacts and mitigation measures as the scientific basis for adaptive management. Finally, some interviewees see protected areas designation as a prerequisite to meeting the emerging standards for forest certification. *All of these arguments call into question the appropriateness of treating protected areas designation as an issue that has been addressed 'once and for all' and is therefore off the table when considering management objectives.*

Several specific policy options could be used to overcome regulatory barriers to the establishment of protected areas (including ecological benchmarks). *An obvious option is to incorporate the ongoing or periodic review of criteria, targets and specific candidate sites for protected areas designation into specific regulatory processes.* For example, protected areas designation could be considered as part of the regular updating of integrated land-use plans or during the renewal process for large industrial tenures, particularly area-based tenures such as Al-Pac's forest management agreement.

Mechanisms for establishing ecological benchmark areas could also be embedded in a revised legal and policy regime for forestry that is based on principles of sustainable forest management. Principles such as those set out in the Alberta Forest Conservation Strategy and a commitment to implementing these principles in a transparent manner, perhaps through adherence to forest certification standards such as those developed by the Forest Stewardship Council for the boreal forest,³⁹ could be adopted as policy and entrenched in legislation. This approach might include building increased flexibility for the establishment of ecological benchmarks into the tenure system, notably in relation to ‘full utilization’ requirements and the calculation of the annual allowable cut. For reasons noted above, effective implementation of this approach through forestry tenure reform would have to be integrated with the regulation of the energy sector and other activities in order to secure effective ecological benchmark areas within the AI-Pac FMA.

Finally, interviewees suggested variations on the conventional approach to establishing protected areas. One person argued that protected areas designation should focus on riparian areas because of their importance as habitat and their influence on instream flow and water quality. Another option is the establishment of ‘floating’ reserves to ensure the conservation of certain ecological values on the landscape. This approach is examined elsewhere in this report when discussing the management of linear disturbances and the maintenance of old growth forest on the landscape. Fiscal mechanisms for establishing ecological benchmarks are discussed in Part 3.

5.7. Reduce Linear Disturbance Density and Manage Human Access

Most of the stakeholders who commented on this management objective agreed that the proliferation of linear disturbances such as roads, seismic lines, pipeline rights of way and off-highway vehicle trails within the AI-Pac FMA has an adverse impact on certain aspects of natural capital. For example, interviewees noted that some animals such as caribou are sensitive to linear disturbances and that roadbeds can adversely affect surface water flows and wetlands. There was also broad consensus that managing the extent and density of linear disturbances by reducing the industrial footprint and avoiding duplication in transportation infrastructure often makes sense from both economic and ecological perspectives. Finally, interviewees generally felt that progress in managing linear disturbances has been achieved over the past several decades, but that some important obstacles and corresponding policy options remain.

A significant area of progress is the reduction of impacts from seismic operations. Many interviewees commented on the benefits ‘low impact’ or ‘no impact’ seismic programs. Techniques include the cutting of very narrow seismic lines, the use of GPS-guided equipment that moves through the forest along non-linear paths, avoiding large trees and sensitive habitat patches where possible (‘avoidance seismic’), limbing trees rather than removing them, and mulching to facilitate regeneration. One interviewee indicated that the typical width of seismic lines has decreased progressively from approximately 10 metres several decades ago to eight, six and now three metres. While some seismic lines are still in the five to six metre range, hand-cut lines can be less than one and a half metres in width. Interviewees could not, however, provide accurate estimates regarding the percentage or absolute amounts of seismic activity that currently uses low- or no-impact techniques or the rate at which these techniques are replacing more

³⁹ Forest Stewardship Council Canada Working Group, *National Boreal Standard*, January 16, 2004 (FSC Canada version), Principle #9 High Conservation Value Forests: <http://www.fsccanada.org/boreal/index.shtml>.

conventional practices. Several interviewees noted that wider conventional seismic lines are still required for the equipment used in some seismic programs.

The adoption of low- and no-impact seismic techniques in the Al-Pac FMA (and elsewhere) is an example of how technological advances can reduce adverse impacts on natural capital while permitting industrial activity to continue in the boreal forest. Several interesting points regarding the adoption of this ‘best practice’ were highlighted in the interviews for this case study.

First, it appears that the principal constraints on the adoption of new seismic technology were the need for research and development and the time and money required to replace the existing capital stock and train seismic crews in the new techniques. This observation highlights an opportunity to use fiscal incentives to promote the rapid development and adoption of technological innovations that conserve natural capital. Options include incentives to encourage R&D and increased depreciation rates for older equipment under the taxation system in order to speed the turnover of capital stock. Interestingly, it appears that the seismic industry did not lobby for these types of measures and government has not provided direct fiscal incentives to promote low-impact seismic operations.

One example of a fiscal incentive for low impact seismic in the Al-Pac FMA is Al-Pac’s waiving of timber damage payments for companies whose seismic programs meet certain criteria. All interviewees who discussed this topic were strongly supportive of this corporate policy and felt that it had contributed changing seismic practices. One interviewee noted that the provincial government offers a rebate of timber damage assessments for the use of low impact seismic. This change in the cost structure, combined with a general acceptance of the need for change, apparently encouraged the development of a whole new generation of seismic equipment. As this technology has become more widely adopted, the costs of using it have decreased.

Second, several interviewees commented that relatively small financial incentives could yield significant changes in seismic techniques. Incentives, it was argued, are significant because they help to create a business case for more conservation-oriented practices and also because of the demonstration effect of endorsing a new way of operating. It appears from the interviewees that many companies in the energy sector are prepared to adopt new techniques even if they are not fully cost-neutral because of the recognized broader benefits, both for natural capital and for the maintenance of industry’s reputation and ‘social license to operate’. Several interviewees noted, however, that large companies are more likely to take this attitude than are smaller ones that have narrower profit margins, less expertise and, perhaps, a lower public profile and hence less concern with their reputations.

The third issue raised by interviewees was the potential role of regulation in reducing the environmental impact of seismic operations. Interviewees indicated that there are no formal regulatory requirements or standards for low impact seismic, although apparently guidelines in certain environmentally sensitive areas (e.g., caribou range) are directed to minimizing disturbance from seismic operations. Some interviewees felt that the use of fiscal incentives and indirect regulatory pressure to reduce impacts was preferable to a ‘command and control’ approach that would set requirements for seismic lines. However, other interviewees stated that a clear signal in the form of regulatory requirements would accelerate the adoption of technology that has already been proven to be a cost-effective way to reduce impacts. In addition, it was

noted that a regulatory requirement would level the playing field by preventing operators from achieving a competitive advantage in the marketplace for seismic services by deferring the adoption of new technology.

Another example of a ‘best practice’ from the AI-Pac FMA is inter-industry coordination of road building. As with the move to low impact seismic, it appears from the interviews that progress in this area is largely the result of initiatives taken by industry leaders such as AI-Pac, several of the large energy companies, and the Alberta Chamber of Resources through its Integrated Landscape Management Program. The extent to which government is actively encouraging (or requiring) the development of shared infrastructure or facilitating inter-industry cooperation to achieve this end is unclear from the interviews.

Interviewees noted that coordinated infrastructure planning has been shown to produce ‘win-win’ outcomes from economic and environmental perspectives, reducing capital and maintenance costs for industries that require roads and minimizing environmental impacts. This approach has been most successful, however, when a small number of larger companies with relatively long planning horizons are operating at the same time on a given land base. Not surprisingly, the examples most frequently cited by interviewees involved AI-Pac and oil sands operators. Road sharing is more difficult for conventional oil and gas operations because of their much shorter planning horizons.

While these two examples of ‘best practices’ have yielded some tangible benefits in the management of linear disturbance density within the AI-Pac FMA, interviewees identified the following barriers to progress:

- The lack of integrated, long-term planning for transportation infrastructure to support industrial activity;
- The absence of recognized science-based ‘thresholds’ and established regulatory limits to provide the basis for determining how much linear disturbance should be permitted;
- The structural obstacles to managing the proliferation and cumulative impacts of linear disturbances that are the result of incremental and sectoral approval processes for roads, seismic programs, pipelines, etc.;
- The fact that short time frames for rights issuance and operational planning in the conventional oil and gas sector make it difficult or impossible to coordinate transportation infrastructure with other companies;
- The inability of the companies that create linear disturbances to control effectively the subsequent use of these corridors by members of the public and to achieve complete decommissioning and reclamation of corridors once industrial operations have been completed; and
- Deficiencies in the government’s current legislation, policy and land management practices that make it difficult to limit public access to industrial corridors once these corridors have been created.

The reclamation of linear disturbances is, of course, another important determinant of the density of disturbances over time and their accessibility to members of the public. This issue is examined in the section of this report dealing with maintenance of total forest cover.

Various regulatory and fiscal tools could be used to address these barriers to the better management of linear disturbance density and associated human access. Seven policy options were identified in the interviews and literature review conducted for this case study.

The first option is the design and implementation of an optimal transportation grid for the Al-Pac FMA. Implementing this option would require the establishment by government of a planning process involving the major industrial players, government land managers and regulatory agencies, and other parties with an interest in the social, economic and environmental implications of transportation infrastructure. This process could be complemented by fiscal incentives and regulatory requirements. The objectives of this initiative would include: (1) planning the location and construction timetable for transportation corridors in order to minimize impacts and costs while meeting the needs of the various interested parties; (2) specifying the design and maintenance standards that are appropriate for all users of the infrastructure; (3) allocating construction and maintenance costs among present and future users; and (4) creating incentives or requirements so that industry will, to the extent possible, adapt its operational planning in order to make use of common transportation corridors.

One obvious challenge for this policy option is the lack of full information on some determinants of future land uses, notably the location and extent of oil and gas reserves. Some reserves have yet to be discovered or fully delineated and technological advances may increase the recovery potential from known reserves. Despite these uncertainties, most interviewees who commented on this issue believe that a proactive approach to anticipating and planning the principal transportation corridors could achieve cost savings and reduce impacts on natural capital over the long term.

A second option is to establish regulatory requirements that companies operating on the same land base coordinate operational planning and share infrastructure. A precedent for this type of regulation is the scrutiny of gas plant applications by the Alberta Energy and Utilities Board in order to prevent the proliferation of facilities.⁴⁰ Applicants are required to demonstrate that their gas processing needs cannot be met by existing facilities before new gas plants will be approved. The Board also has the power to order owners of existing facilities to process gas from other companies. A similar approach could be adopted when considering applications for new roads, pipeline rights of way and similar linear disturbances.

There were some differences of opinion among interviewees regarding the appropriateness of a regulatory approach. Some interviewees stated that the economic and environmental benefits of sharing infrastructure are so clear that industry laggards in this area should simply be required to follow best practices. Others noted, however, that smaller companies are less able to engage in this type of process and that leadership by government or fiscal incentives to engage in cooperative planning would be appropriate given the benefits for broader public values. Effective

⁴⁰ Alberta Energy Resources Conservation Board (now Alberta Energy and Utilities Board), *Applications for Approval of Gas Processing Schemes – Policy on Plant Proliferation*, ERCB Informational Letter IL 91-1, 29 January 1991.

implementation of this option would, of course, require some attention to aligning the planning time frames of different companies and approval processes. This issue, in turn, raises again the broader cross-cutting questions related to integrated planning and the incentives and requirements embedded in tenure regimes.

A third option, that could include both fiscal and regulatory components, would be to establish stronger incentives or specific requirements to adopt ‘best practices’ when creating linear disturbances. The issue of fiscal incentives for low- or no-impact seismic was discussed above. Several interviewees commented that offering expedited approvals and other reductions in regulatory costs for activities that meet ‘best practice’ criteria could also provide a strong incentive to minimize linear disturbances. Regulatory options include a blanket requirement to meet specified low impact standards or a more flexible approach that would, for example, require companies applying for seismic approvals to adopt low-impact techniques unless they can demonstrate that these techniques are infeasible or would not yield any significant environmental benefit.

A few interviewees cautioned, however, that the adoption of ‘best practices’ may not, by itself, be sufficient to ensure the conservation of natural capital. Adverse cumulative effects can occur whenever disturbances create discernable impacts. For example, one interviewee noted that the excessive proliferation of stream crossings within a given area is likely to have some negative environmental impacts even if each crossing meets the ‘best practice’ standard.

A fourth option is a policy of ‘no net increase’ in linear disturbance density within specified areas. This type of policy could be implemented through a regulatory limit or ‘cap’ on linear disturbances and the provision of various mechanisms for companies to secure rights to create linear disturbances or to offset proposed development through reclamation. Disturbance rights could be issued or auctioned by government and then traded among companies. For example, an oil and gas company operating in an area might purchase the rights of a forest company to create roads, thereby preventing forestry operations in the area but allowing for energy development. Companies could also be required to reclaim existing linear disturbances before creating any new ones. For this mechanism to work effectively, however, some means for comparing the ‘value’ of disturbed and reclaimed land is required and it is also necessary to ensure, to the extent possible, that reclamation efforts are successful (e.g., that reclaimed roads are not reopened for other industrial or recreational use). Offset or mitigation banking could be used to facilitate offset transactions. This technique would allow government, industry or other land stewards to establish reclamation projects that would then be available through an intermediary (the reclamation bank) to companies in need of offsets for their proposed linear disturbances.

Regulatory requirements to improve reclamation constitute a fifth option for managing linear disturbance density over time. This topic was addressed above in the section of this report that addresses the objective of maintaining total forest cover.

A sixth option is the adoption of a ‘roadless areas policy’ that would identify areas with few or no roads or other access corridors and explicitly recognize the ecological value of these areas when making land-use decisions. A roadless areas policy could be linked to protected areas designation or incorporated into an ILM framework on the working landscape. Although transportation corridors are inevitable on working landscapes, integrated planning could direct

resource development to particular areas for a given periods of time and provide for the progressive reclamation of roads and other linear disturbances as the geographic focus of industrial activity shifts. This approach could be used to establish ‘floating’ roadless areas (or areas with limited road access) that could be moved over time across a large landscape such as the Al-Pac FMA.

The seventh and final option is to shift the focus on managing the human use of industrial access corridors once they have been created. Restricting the recreational and industrial use of linear disturbances through access management mechanisms other than complete reclamation could address some, but not all, of the adverse effects on natural capital from this type of development. For example, it would address impacts directly related to off-highway vehicle use (e.g., erosion, soil compaction), hunting and fishing (e.g., pressure on sensitive populations) and increased human presence in environmentally sensitive areas (e.g., poaching, displacement of animals from breeding habitat). However, human access management would obviously not address certain other effects of linear disturbances, such as pressure on caribou populations linked to the use of these corridors by wolves. Furthermore, access management policies and practices are unlikely to be completely effective in the face of determined efforts by some people to make use of existing linear disturbances and given the limited resources that government currently allocates to monitoring and enforcement.

Interviewees were divided about the appropriateness and likely success of this policy option. Some interviewees felt that pressure from certain segments of the public (e.g., the off-highway vehicle lobby) to maintain and expand access using industrial corridors is so strong – and government resistance to that pressure so weak – that the best strategy for conserving natural capital is to limit the creation of corridors in the first place, rather than attempting to restrict access significantly once they are in place. However, other interviewees argued that recreational access requires attention because linear corridors are needed for resource development. Furthermore, it was argued that the adverse impacts on natural capital of these corridors are magnified significantly by their subsequent use for recreational purposes. From this perspective, managing recreational access should be the priority because it reduces negative impacts on natural capital without unduly impeding the creation of corridors for industrial use.

A complete review of Alberta’s legal and policy regime for access management is beyond the scope of this case study.⁴¹ Nonetheless, some interviewees touched on both barriers and policy options in this area. Two principal barriers were identified. First, companies that create linear disturbances are in most circumstances unable to restrict the use of these corridors by recreational users, even when these companies are under pressure from regulators and stakeholders to reduce the direct and indirect impacts of their activities on natural capital. Second, there is a perception that the Government of Alberta lacks the regulatory tools and the ‘political will’ to implement effective access management.

⁴¹ For a detailed discussion of access management in Alberta, British Columbia and Saskatchewan, see: Michael M. Wenig & Steven A. Kennett, *The Legal and Policy Framework for Managing Public Access to Oil and Gas Corridors on Public Lands in Alberta, Saskatchewan, and British Columbia*, Report prepared for the Canadian Association of Petroleum Producers (CAPP) by the Canadian Institute of Resources Law, 11 May 2004. Distribution of this report is being handled by Brad Herald, Environmental Advisor, CAPP.

From a regulatory perspective, government land managers are not powerless in the face of increasing public access associated with industrial development. Access restrictions can be specified for individual industrial dispositions on public land (e.g., licences of occupation for roads). There is also a provision under the *Forests Act* for establishing Forest Land Use Zones, within which public access is permitted only along designated routes. Reclamation requirements, fish and wildlife regulations and other regulatory tools may also support access management in some circumstances. It appears from the interviews, however, that strong lobbies in support of the public's 'right' of access to public land have limited the use of these mechanisms in Alberta. Furthermore, once 'traditional' access has been established – meaning access along any corridor that is not closed from the time of its development – the Alberta government's policy is to maintain access unless there are exceptional circumstances.⁴²

Options for improving access management could take either regional or activity-specific approaches. The most obvious way to balance competing values and manage cumulative effects on a regional basis is access management planning. Alternatively, access issues could be addressed on a disposition-by-disposition basis through direct regulation or by granting resource companies greater authority to manage access on the access corridors that they create. If companies are to play a greater role in access management, however, they may require more protection from liability in the event that people using linear disturbances are injured or suffer property damage as a result of collision with physical access barriers. Finally, government action in support of access management could include public education and enhanced enforcement of access restrictions.

5.8. Maintain Terrestrial Carbon Stocks and Sinks

As noted by one interviewee, anthropogenic climate change is likely to be a major determinant of the fate of Canada's boreal forest over the coming century and beyond. It is not, however, a factor that can be controlled directly by the decision-makers charged with land and resource management in the AI-Pac FMA. The emerging international and domestic regimes for limiting net greenhouse gas (GHG) emissions could, however, have important implications for the conservation of natural capital in the boreal forest.

There are considerable stores of terrestrial carbon within the boreal forest, notably in peat bogs, other wetlands, soil and standing timber. Regulatory and fiscal tools to promote the conservation of this type of natural capital could be developed. Furthermore, policies intended to protect terrestrial carbon stocks and sinks in the boreal forest could also yield an array of 'co-benefits' in relation to other type of natural capital. For example, measures to protect peat bogs for their carbon content would also benefit plant and animal species that depend on this type of habitat.

At the present time, however, there are significant barriers to the implementation of an effective regulatory and fiscal regime for carbon management in the boreal forest. At the international level, it is still not certain that the Kyoto Protocol will enter into force or what type of agreement will replace it if ratification by the required number of countries is not achieved. Even if the Kyoto Protocol does come into force, its effectiveness remains in doubt given the refusal of important industrial countries such as the United States and Australia to sign on. While Canada

⁴² Government of Alberta, *Motorized Access Management Policy on Industrial Dispositions*, 8 June 1993.

has ratified this agreement, there is continuing uncertainty about our ability to meet emissions reductions targets. Finally, Canada has yet to establish a domestic regime for promoting biotic carbon sequestration and managing terrestrial carbon stores.

Interviewees who commented on this issue raised a wide variety of questions relating to carbon management and provided few answers. A detailed examination of these questions and the policy options for addressing them is not possible within the time and budget limitations for this case study. Fiscal incentives for maintaining carbon balances on forest lands may have a significant impact on numerous conservation objectives and are discussed in Part 3.

Climate change will remain an important global issue for the foreseeable future and the management of terrestrial carbon stores is likely to remain one component of the broader strategy that will be required to stabilize atmospheric GHG concentrations. Since the boreal forest is one of the Earth's great storehouses of terrestrial carbon, the emerging regime for carbon management could have important implications for the management of this region over the coming decades.

6. Areas for Additional Research and Analysis

The objective of this case study has been to provide a broad overview of issues and a fairly comprehensive menu of policy options for conserving natural capital within the AI-Pac FMA. This approach has precluded a detailed examination of many of the topics touched on in the previous sections. This limitation was noted at various points in the report. As the Task Force overseeing the Boreal Forest Project considers the results of the three case studies that it has commissioned and determines the focus for its final report, further research may be warranted to refine recommendations on certain topics. This report will hopefully provide some guidance when identifying research needs.

More detailed examination of specific legislation, policies and institutional arrangements may also be warranted. For example, federal legislation such as the *Canadian Environmental Assessment Act*, the *Fisheries Act*, the *Migratory Birds Convention Act* and the new *Species at Risk Act* may well provide specific regulatory tools for promoting, or requiring, the conservation of natural capital. The limited time and budget for this case study precluded an examination of these statutes, and other federal and provincial laws, regulations and policies that may be relevant to the conservation of natural capital. The interview-based methodology used for this case study was also not conducive to a detailed analysis of law and policy, particularly recent initiatives such as the *Species at Risk Act* with which stakeholders typically have little or no practical experience.

7. Summary and Conclusions

The analysis of regulatory issues in this case study reflects the fact that numerous activities are contributing to landscape-level changes within the AI-Pac FMA and are thereby affecting natural capital. While sectoral legislation and decision-making processes (e.g., regarding forestry and energy development) have significant implications for the conservation of natural capital, the multiple-use context further complicates the task of decision-makers as they attempt to balance a broad range of values and interests, including those relating to conservation.

In order to promote conservation while considering economic activities and other values within the Al-Pac FMA, decision-makers must have the institutional capacity to define landscape-level objectives with reasonable precision and to manage cumulative environmental effects over spatial and temporal scales that are meaningful from ecological, social and economic perspectives. This capacity, in turn, requires attention to the regulatory ‘fundamentals’ that are highlighted by the cross-cutting barriers to conservation discussed in this report. In particular, it requires an integrated approach to land and resource management – commonly referred to as integrated landscape management.

In addition to the cross-cutting barriers and corresponding policy options, the discussion has focused on a set of more specific management objectives that could be adopted in order to promote the conservation of natural capital within the Al-Pac FMA. For each of these objectives, regulatory barriers exist and policy options can be identified. The regulatory approaches canvassed in this part of the report could be used in conjunction with the fiscal mechanisms and economic instruments that are examined in Part 3. In many cases, regulatory and fiscal options are closely related.

The findings from this case study are, of course, directly relevant to the Al-Pac FMA itself. This area is significant in its own right from ecological, economic and social perspectives. It is also an area where a variety of stakeholders have devoted considerable effort to processes that are intended to provide guidance on how to achieve an appropriate balance between economic development, social and cultural values, and the conservation of natural capital. This report is intended to provide some specific suggestions for making progress in this complex task.

The intent of this case study is also to inform the discussion of issues and options relating to the conservation of natural capital in the boreal forest as a whole. From this broader perspective, the Al-Pac FMA offers decision-makers and stakeholders in other parts of the boreal forest an opportunity to ‘look ahead’ to a scenario of intense, multiple and sometimes competing land uses and values – and adjust their legislation, policies and land-use practices accordingly if they see fit.

Appendix 1 – List of Interviewees

Kirk Andries
Ursus Public Affairs Group

Randall Barrett
Alberta Environment

Roger Creasey
Shell Canada Limited

Ken Crutchfield
Alberta Sustainable Resource Development

Mike Doyle
Canadian Association of Geophysical
Contractors

Christine Found
Alberta Sustainable Resource Development

Bill Gummer
Environment Canada

Brad Herald
Canadian Association of Petroleum
Producers

Lisa King
Athabasca Chipewyan First Nation

Peter Kinnear
Canadian Natural Resources Limited

Dennis Kohlman
Petro-Canada Limited

Peter Koning
Conoco-Phillips Limited

Gord Lambert
Suncor Limited

Peter Lee
Global Forest Watch Canada

David Luff
Inukshuk Consulting Inc.

Pat Marcel
Athabasca Chipewyan First Nation

Chief Morris Monias
Heart Lake First Nation

Shira Mulloy
Canadian Association of Petroleum
Producers

Bob Nichol
Alberta Pacific Forest Industries Inc.

David Pryce
Canadian Association of Petroleum
Producers

Rick Schneider
Canadian Parks and Wilderness Society

Neil Shelley
Alberta Forest Products Association

Paul Short
Alberta Sustainable Resource Development

Gary Stewart
Ducks Unlimited Canada

David Stuart
Petro-Canada Limited

Neil Symington
EnCana Corporation

Shawn Wasel
Alberta Pacific Forest Industries Inc.

Shad Watts
Alberta Energy

Dan Woynilowicz
Pembina Institute

Appendix 2 – Interview Request Letter and Outline of Discussion Points for Interviewees

Dear X

The National Round Table on the Environment and the Economy (NRTEE) has commissioned a case study of the Alberta Pacific Forest Industries (Al-Pac) Forest Management Area as part of its program on the conservation of natural capital in Canada's boreal forest. This case study will identify fiscal and regulatory barriers to conservation and will review policy options and best practices for conserving natural capital, recognizing the importance of resource development and other economic and social values relating to land use in this area.

Interviews with key stakeholders are an important part of the case study. I am therefore writing to ask if you would be available for a one hour telephone interview sometime in April or early May. We are interested in your views on the following general questions:

- (1) What are the key conservation objectives that should be promoted in the Al-Pac Forest Management Area?
- (2) What landscape characteristics (e.g., indicators) are required to achieve these conservation objectives and how are these characteristics affected by land uses in the area?
- (3) What specific management objectives for land-uses in the Al-Pac area could be adopted to promote the conservation of natural capital?
- (4) What are the regulatory/fiscal obstacles to achieving these management objectives and what regulatory/fiscal tools could be used to overcome these obstacles and to promote the conservation of natural capital?

Prior to the interview, we will send you with a more detailed list of possible management objectives and policy options as the basis for our discussion.

Our interdisciplinary project team for the case study consists of Steve Kennett and Monique Ross (Canadian Institute of Resources Law), Marian Weber (Alberta Research Council), Brad Stelfox (Forem Technologies) and Daniel Farr (Biota Research). We will be participating in a stakeholder workshop in May and will be submitting our report to the NRTEE in early July.

If you are willing to be interviewed for this project, please contact me by e-mail (kennett@ucalgary.ca) or telephone (403) 220-3972 so that we can set a time. I would also be happy to answer any questions that you may have regarding the project. I look forward to speaking with you.

Yours truly,

Steve Kennett
Research Associate
Canadian Institute of Resources Law

AL-PAC CASE STUDY OUTLINE OF DISCUSSION POINTS FOR INTERVIEWS

The National Round Table on the Environment and the Economy (NRTEE) has commissioned a case study of the Alberta Pacific Forest Industries (Al-Pac) Forest Management Area for its program on the conservation of natural capital in Canada's boreal forest. This case study will identify fiscal and regulatory barriers to conservation and policy options for conserving natural capital, while recognizing the importance of resource development and other economic and social values for land use in this area.

The purpose of interviews is to obtain stakeholder views on conservation objectives, corresponding management objectives for land and resource use, and the regulatory and fiscal mechanisms that could be used to achieve these objectives. This outline is intended to stimulate thought on these issues, not to prejudice the outcomes of the case study. The project consultants will include the comments of stakeholders in their review and analysis of issues and policy options. Interviewees are encouraged to identify other issues, objectives and policy options that should be addressed in the case study, and should not confine themselves to management objectives and policies that exist under the *status quo*.

The issues directly relevant to the case study are noted below. **The primary focus of the interviews will be issues 3-6.**

1. What key conservation objectives should be promoted in the Al-Pac area?

Examples of **conservation objectives** might include the maintenance of biodiversity, hydrological function and aquatic resources, productive capacity of forest ecosystems, forest contribution to global carbon cycles, etc.

2. What landscape and aquatic characteristics are desirable for achieving these conservation objectives, and what human activities may adversely affect the retention of these desired characteristics?

Examples of **desirable landscape and aquatic characteristics** might include unfragmented habitat (e.g., roadless areas), old growth forest or other key habitat types, undisturbed riparian areas, overall amount of forest cover, instream flows, etc.

Examples of **human activities** that may adversely affect desired characteristics might include road building, timber harvest, seismic activity and well drilling, human access for recreation (including hunting and fishing), disruption of natural disturbance regimes, and point/non-point source water pollution from mills, etc.

3. What specific management objectives for land-uses in the Al-Pac area could be adopted to promote the conservation of natural capital?

Examples might include the establishment of protected areas, management of linear disturbance density, management of access, maintenance of old growth forest, maintenance

of aquatic features, maintenance of the natural distribution of landscape features (e.g. patch size, age class, stand composition), maintenance of total forest area, and maintenance of terrestrial carbon sinks and stock.

4. What are the current regulatory and fiscal barriers to achieving these management objectives?

The NRTEE has identified the following **general barriers** to the conservation of natural capital in Canada: lack of political will and accountability by governments; lack of conservation planning at a landscape level; key stewards are often not ‘at the table’ (notably Aboriginal peoples); lack of economic benefits and incentives for key stewards; lack of information tools to support decision making; failure to integrate the true costs and benefits of nature; and lack of financial resources to support conservation and partnerships.

Specific **regulatory and fiscal barriers** to conservation in the AI-Pac area might be related to resource tenures and the disposition system for allocating resources on public lands, inadequate integration of decision-making across resource sectors and land uses, the royalty, tax, and stumpage structure, specific forest management requirements (e.g., the allowable annual cut calculation formula, sustained harvest requirements), etc.

5. What regulatory and fiscal tools might be used to promote each of the specific conservation-oriented management objectives noted above (#3), and what are some key challenges in implementing these policy options?

Regulatory tools might include integrated land-use planning (including zoning – e.g., TRIAD approach), habitat and/or fragmentation thresholds, protected areas designation, improved wildlife management, human access management, regulatory standards that require ‘best practices’, etc.

Fiscal tools might include charges for non-reclaimed roads, performance bonds, subsidies or tax credits for reclamation, tradable permits, natural resource accounts, and carbon credits/taxes.

Challenges may include feasibility and costs of monitoring and enforcement, inadequate budgets, equity concerns, reduced competitiveness, lack of public support.

6. What are some particular concerns or issues related to Aboriginal peoples that need to be considered in designing and implementing conservation objectives?

EXAMPLES OF ABORIGINAL ISSUES MIGHT INCLUDE UNCERTAINTY REGARDING ABORIGINAL AND TREATY RIGHTS, TRADITIONAL LAND USES, ONGOING LEGAL CHALLENGES, THE LEGAL DUTY TO CONSULT IN RELATION TO LAND AND RESOURCE USES AFFECTING ABORIGINAL RIGHTS, ETC.

Appendix 3 – Workshop Agenda and Issue and Option Outline for Workshop Participants

Development and Conservation in our Boreal Forest: Reaching a Balance

Multistakeholder Workshop AIPac Forest Management Area Holiday Inn, 8200 Franklin Avenue, Fort McMurray, AB

May 3, 2004
8 h 00 à 17 h 00

Agenda

- 8:00 *Continental breakfast hosted by NRTEE*
- 8:30 **Opening remarks**
Harvey Mead, Chair
- 8:40 **NRTEE Boreal Forest Program**
Bill Borland / Wendy Carter, NRTEE Task Force Co-Chairs
- 8:55 **Facilitator**
- 9:00 **Introduction to AIPac Case Study**
Presentation by Project Consultants
- 9:15 Q & A
- 9:25 **Case study session #1: Conservation Values and Objectives, Land-use in the AIPac Forest Management Area, and Possible Management Objectives for Promoting Conservation**
Presentation by Project Consultants
- 10:00 Q & A
- 10:15 Break**
- 10:30 Round table discussions
- 11:00 Round table reports
- 11:15 **Case study session #2: Barriers to Conservation in the AIPac Forest Management Area (i.e. barriers to achieving the conservation-oriented management objectives)**
Presentation by Project Consultants
- Q & A

- 11:30 Round table discussions
- 12:15 Lunch hosted by NRTEE**
- 1:00 Round table reports
- 1:15 **Case study session #3: Policy Options (regulatory and fiscal) for Promoting Conservation in the AIPac Forest Management Area (i.e. regulatory and fiscal tools for achieving the conservation-oriented management objectives)**
Presentation by Project Consultants
- Q & A
- 1:30 Round table discussions
- 2:30 Round table reports
- 2:45 Break**
- 3:00 **Case Study Session #4: Best Practices and Opportunities at a National Level**
Presentation by Project Consultants
- 3:15 Round table discussions
- 3:45 Round table reports
- 4:00 **Final conclusions and advice to the NRTEE**
- 4:30 **Wrap up and next steps**

**NATIONAL ROUND TABLE ON THE ENVIRONMENT AND
THE ECONOMY – BOREAL FOREST PROGRAM**

AL-PAC FOREST MANAGEMENT AREA CASE STUDY

STAKEHOLDER WORKSHOP

**May 3, 2004
Fort McMurray**

ISSUE AND OPTION OUTLINE FOR WORKSHOP PARTICIPANTS

18 APRIL 2004

The National Round Table on the Environment and the Economy (NRTEE) has commissioned a case study of the Alberta Pacific Forest Industries Forest Management Area (Al-Pac FMA) for its program on the conservation of natural capital in Canada's boreal forest. This case study will identify fiscal and regulatory barriers to conservation and policy options for conserving natural capital, while recognizing the importance of resource development and other economic and social values for land use in this area.

The examination of these issues within the Al-Pac FMA is one of three case studies commissioned by the NRTEE as part of its Boreal Forest Program. The goal of this program is **“To advance conservation in balance with economic activity on public lands allocated for resource development in Canada's boreal forest through regulatory and fiscal policy reform.”** The Boreal Forest Program builds on the findings, conclusions and recommendations contained in *Securing Canada's Natural Capital: A Vision for Nature Conservation in the 21st Century* (NRTEE, 2003).

The focus on conservation of natural capital is consistent within the NRTEE's overall mandate, which is to “play the role of catalyst in identifying, explaining and promoting, in all sectors of Canadian society and in all regions of Canada, principles and practices of sustainable development.”

The purpose of the workshop is to obtain stakeholder views on conservation objectives, corresponding management objectives for land and resource use, and the regulatory and fiscal mechanisms that could be used to achieve these objectives. This outline is designed to assist participants in preparing for the workshop by providing an overview of issues and policy options that have been identified to date by the project consultants and by stakeholders who have been interviewed for the case study.

The issues and options set out below are preliminary and are presented to stimulate discussion, not to prejudice the ultimate findings and conclusions of the case study. Participants are encouraged to identify other issues, objectives and policy options that should be addressed in the case study and should not confine themselves to management objectives and policies that exist under the status quo.

The project consultants will incorporate comments from workshop participants into the case study report. Interviews with individual stakeholders are also being conducted. The case study report will be submitted in early July to the Task Force that is leading the NRTEE's Boreal Forest Program. For more information on the NRTEE's Boreal Forest Program, please contact Karen Hébert at (613) 943-0399 or hebertk@nrtee-trnee.ca.

This outline includes discussion points for each of the main workshop sessions (see Workshop Agenda). These sessions are structured to encourage a focused and productive discussion of regulatory and fiscal barriers to the conservation of natural capital in the AI-Pac area and policy options (e.g., regulatory and fiscal tools) that could be used to promote conservation within a context where there are often other significant land uses and values. The workshop facilitator will encourage participants to stay focused on these key questions.

Case Study Session #1 – Conservation Values and Objectives, Land-use in the AI-Pac FMA, and Possible Management Objectives for Promoting Conservation

The primary objective of this session is to establish some common ground among workshop participants on a range of management objectives that could be used to promote the conservation of natural capital within the AI-Pac FMA. General agreement on a suite of potential management objectives will provide the basis for the subsequent examination of barriers to achieving these objectives and policy options for promoting them. Participants will not be expected to reach consensus on the relative importance of conservation as compared with other values such as resource development, nor will they be asked to prioritize management objectives.

This session will include a general presentation by the project consultants on land-use patterns and indicator trends within the AI-Pac FMA. This presentation will review the natural capital, resource values and other relevant characteristics of the area, the history of land and resource use, and potential land-use trajectories. The session will provide the overall context for subsequent discussions, but is not designed to achieve consensus on the details of modeling methodology and assumptions or on precise projections of future land use within the AI-Pac FMA.

The specific questions to be examined in this session are:

1. What key conservation objectives should be promoted in the AI-Pac FMA?

Examples of **conservation objectives** might include the maintenance of biodiversity, ecosystem condition and productivity, hydrological function and aquatic resources, contribution to the global carbon cycle, etc.

2. What are the indicators of natural capital that correspond to these conservation objectives, and what human activities may adversely affect these indicators?

Examples of **indicators of natural capital** might include extent of forest cover, extent of wetlands, old growth forest, undisturbed landscapes, persistence of natural disturbance regimes (and resulting landscape characteristics), quantity and quality of surface water, and carbon balance (i.e., GHG emissions and carbon sequestration).

Examples of **human activities** that may affect these indicators might include road building, timber harvest, seismic activity, oil and gas production (e.g., wells, surface mining), human access for recreation (including hunting and fishing), disruption of natural disturbance regimes, point/non-point source water pollution, etc.

3. What specific management objectives for land-uses in the AI-Pac FMA could be adopted to promote the conservation of natural capital?

Examples of management objectives might include:

- Maintenance of total forest cover;
- Maintenance of key aquatic and hydrological features (e.g., wetlands, surface water quality and quantity, etc.);
- Identification of areas of traditional Aboriginal use and value, and the management of human activities (e.g., industrial and recreational activities) in order to respect and accommodate the traditional uses and values;
- Maintenance of old growth forest within the range of natural variation across the landscape;
- Establishment of ‘set-aside’ areas where industrial activity is either prohibited or severely restricted (e.g., protected areas, roadless areas, ecological benchmark areas);
- Management of linear disturbance/access density;
- Maintenance of the natural disturbance regime (including land-use practices that approximate, to the extent possible, patterns of natural disturbance);
- Maintenance of terrestrial carbon stocks and sinks.

Workshop participants will be asked to comment on these options and to identify other possible management objectives. Suggested objectives should be as specific as possible in stating how land and resource uses will be managed so as to minimize their adverse impacts on indicators of natural capital.

Case Study Session #2 – Barriers to Conservation in the AI-Pac FMA (i.e., barriers to achieving the conservation-oriented management objectives)

Workshop participants will be asked to identify and comment on **regulatory and fiscal barriers** to the conservation of natural capital in the AI-Pac FMA. Some barriers may be relevant to several (or all) of the specific management objectives discussed in Session #1, while others may apply to only one objective.

The following list of possible barriers is intended for illustrative purposes and reflects comments obtained through stakeholder interviews. Workshop participants are encouraged to comment on these points and to identify any other barriers that they consider to be important. Barriers to the conservation of natural capital may include:

- Lack of an adequate integrated planning process to establish landscape-level objectives, identify acceptable trade-offs among land and resource uses, and guide subsequent decision-making by government, industry and other parties;
- Inadequate integration of decision-making (e.g., land-use planning, resource allocation, project review, regulation of projects and activities) across the full range of resource sectors and land uses;
- Absence of a clear institutional focal point within government for accountability on landscape-level issues – such as the conservation of natural capital;
- Inadequate economic benefits and incentives to promote the conservation of natural capital by key stewards;
- Lack of information tools to support decision making, or a failure to use information that is available (e.g., a support system for measuring and managing the cumulative impacts of resource development);
- Absence of policies and processes relating to the establishment of ecological benchmarks and protected areas within the broader working landscape;
- Deficiencies in the multi-stakeholder forums and decision-making processes that are intended to address conservation and other aspects of land and resource use (e.g., key stakeholders/stewards are not ‘at the table’, inadequate participation by key stakeholders, lack of commitment by government to follow through with the implementation of recommendations from these processes, etc.);
- Lack of financial resources to support conservation and partnerships (or excessive reliance on contributions from industry and other non-governmental stakeholders);
- Constraints and incentives created by the disposition and tenure systems for allocating resources on public lands (e.g., overlapping resource tenures, ‘use it or lose it’ requirements for tenure holders, compressed time lines for resource development once tenures have been issued);
- Fiscal incentives relating to the royalty, tax, and stumpage structure that limit conservation options;
- Specific resource management requirements that impede adaptive management and constrain options for conserving natural capital (e.g., the annual allowable cut calculation formula, full utilization requirements, harvesting of old growth forest);

- Approval processes for projects and activities that allow incremental development without adequately addressing cumulative impacts (e.g., approval processes for seismic operations, well sites, pipelines, stream crossings, etc.); and
- Legislation and policy governing public land dispositions (e.g., licences of occupation for roads) and recreational land-use that make it difficult to implement effective access management.

Workshop participants should also consider particular issues or concerns related to Aboriginal peoples that need to be taken into account when designing and implementing measures to conserve natural capital. Examples of **Aboriginal issues** might include uncertainty regarding Aboriginal and treaty rights, lack of information about traditional land uses, ongoing legal challenges, confusion regarding the legal duty to consult in relation to land and resource uses affecting Aboriginal rights, the challenge of incorporating traditional knowledge into decision-making processes, etc.

Given the range of regulatory and fiscal barriers that may be identified, workshop participants will be asked to focus initially on the over-arching barriers that they consider to be the most significant (i.e., barriers that affect the implementation of many or most of the management objectives identified in the previous session). Participants should then identify the principal barriers that are relevant to particular management objectives.

Case Study Session #3 – Policy Options (Regulatory and Fiscal) for Promoting Conservation in the AI-Pac FMA (i.e., regulatory and fiscal tools for achieving the conservation-oriented management objectives)

Workshop participants will be asked to identify regulatory and fiscal policy options for overcoming the principal barriers to the conservation of natural capital that they identified in **Session #2**. Some of these options may address general or over-arching barriers. Participants will also be asked to identify regulatory and fiscal tools for implementing the specific management objectives identified in **Session #1**.

Examples of **regulatory tools** include:

- Integrated land-use planning (including zoning – e.g., TRIAD approach);
- Changes to the resource allocation and tenure regimes (e.g., modification of ‘use it or lose it’ requirements, improved mechanisms for the environmental review of tenure decisions);
- Design and implementation of an effective legal, policy and institutional framework for integrated resource management (IRM);
- Improved legal and policy framework for consultation with Aboriginal peoples regarding resource development and other land uses affecting Aboriginal rights;

- Measures to promote the consideration of Aboriginal interests and values in decision-making on land and resource use (e.g., use of traditional land-use studies and traditional knowledge);
- Establishment of a policy and process to consider the designation of ecological benchmark areas and other protected areas within the broader working landscape;
- Alignment of forest management legislation and policy with forest certification requirements and principles of ecosystem-based forestry (e.g., recommendations in the Alberta Forest Conservation Strategy);
- Habitat and/or fragmentation thresholds to address cumulative effects;
- Adoption of ‘no net loss’ requirements for certain indicators of natural capital;
- Improvements to the information base, decision-making tools and enforcement capacity for fish and wildlife management;
- Enhanced reclamation requirements;
- Strengthening and more effective implementation of legal and policy mechanisms for human access management (e.g., designation of Forest Land Use Zones, enhanced education and enforcement activities); and
- Regulatory requirements to coordinate operational planning and share infrastructure (e.g., roads).

Examples of **fiscal tools** include:

- Tax or royalty concessions for improved stewardship;
- Fiscal incentives to promote the development and rapid adoption of improved technology (e.g., low-impact seismic);
- Charges for non-reclaimed roads, well-sites and other disturbances;
- Subsidies, tax credits, reduced surface lease payments or other fiscal incentives for reclamation;
- Reasonable compensation for the surrender of resource tenures to achieve conservation objectives;
- Improved alignment of timber damage assessment with the true private and public (e.g., ecosystem) costs resulting from loss of forest cover;
- User fees to address subsidies that are implicit in some uses of ‘free’ public resources (e.g., water);

- Removal of implicit subsidies in the resource disposition process (e.g., ensure that the full market value of the resource and some non-market values are reflected in the disposition price for public resources – auction price of sub-surface rights, stumpage fees, etc.);
- Fiscal incentives to cluster development and reduce landscape fragmentation (e.g., haul tax);
- Use of performance bonds to increase incentives for compliance and to reduce the risk of unfunded public liabilities;
- Tradable permits and the use of offsets and offset banking (e.g., for linear disturbances, logging of old growth forest, drainage of wetlands, etc.);
- Natural resource accounting that better reflects the value of natural capital; and
- Carbon credits or taxes.

Case Study Session #4 – Best Practices and Opportunities at the National Level

This session will focus on the principal key lessons from the workshop regarding barriers to conservation and opportunities for using regulatory and fiscal policy reform to promote the conservation of natural capital in the AI-Pac FMA. Workshop participants will be asked to reflect on the previous sessions and identify the ‘best practices’ and policy options that have the most potential for application across the boreal forest as a whole.