

**THE EFFICACY OF
ENVIRONMENTAL IMPACT ASSESSMENT
IN SASKATCHEWAN'S FOREST RESOURCE SECTOR**

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ABSTRACT

Is environmental impact assessment (EIA) an effective tool for environmental management in Canada? Since its introduction in the early 1970s, EIA has emerged to be more participative, more comprehensive, and more closely monitored. However, the extent to which EIA has achieved its goal for environmental management remains unknown. The problem is that although agencies and scholars have examined the influence of individual EIA dynamics such as public participation and follow-up and monitoring, there lacks a comprehensive evaluation of the efficacy of EIA as a tool for ensuring better environmental management of development actions. In the rare instances where efficacy has been addressed studies have tended to focus on streamlining EIA systems, or minimizing the task of the proponent whose development is subject to EIA. But has this concern with procedural efficiency come at the expense of efficacy? The purpose of this thesis was to examine the efficacy of EIA as a tool for environmental management, focusing specifically on twenty-year forest management planning and assessment in Saskatchewan's forest resource sector. Efficacy, in this context, is defined as a measure of goal attainment. Simply put, EIA may be considered effective if it contributes to better environmental management practices and outcomes. In this regard, efficacy can be interpreted based on evaluations of inputs (e.g. legal and regulatory requirements), procedural outputs (e.g. improved participation, better environmental planning, etc.), and environmental and socio-economic outcomes (e.g. better environmental management practices, improved state of the environment, sustainable development, etc.). Data were collected via document analysis of relevant forest management plans and through semi-structured interviews with government, industry and those who have a stake in Saskatchewan's forest resource sector, or are concerned about the efficacy of EIA in Canada. Results demonstrated that EIA plays an important role in the forest management planning process, providing for greater understanding of potential effects at the ecosystem-level, facilitating public engagement, and is more apt to consider broad alternatives to proposed forest management plan (FMP) activities. However, the current approach to EIA is only loosely linked to sustainable forest management (SFM) objectives and outcomes. There is concern amongst stakeholders that requiring EIA approval of 20-year FMPs is a costly and inefficient duplication of process. A more integrative approach to EIA in the

forest sector, specifically in the form of regional or strategic environmental assessment is required if EIA is to play a more effective role in ensuring SFM. The research results contribute to a larger project to advance the efficacy of EIA as an integrative tool for environmental management more broadly.

Keywords: Environmental impact assessment, efficacy, forest management planning, Saskatchewan

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TABLE OF CONTENTS

PERMISSION TO USE	i
ABSTRACT.....	ii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS.....	v
FIGURES	vii
TABLES	vii
ACRONYMS.....	vii
APPENDICES	viii
CHAPTER 1	1
INTRODUCTION	1
1.1 Research Objectives.....	3
1.2 Study Area	4
1.3 Theoretical Context.....	5
1.4 Thesis Structure	9
CHAPTER 2	10
LITERATURE REVIEW	10
2.1 Environmental Impact Assessment.....	10
2.1.1 <i>EIA Development in Canada</i>	12
2.2 Disillusionment and Dismay.....	14
2.2.1 <i>Expectations</i>	15
2.2.2 <i>Applications</i>	16
2.2.3 <i>Political Objectives</i>	17
2.2.4 <i>Meaningful Monitoring</i>	18
2.3 Effective Environmental Impact Assessment	19
2.4 Assessing Effectiveness in Environmental Management	20
2.5 Sustainable Forest Management	21
CHAPTER 3	25
RESEARCH METHODS	25
3.1 Environmental Impact Assessment in Saskatchewan’s Forestry Sector.....	25
3.2 Mistik Forest Management Agreement Area.....	26

3.3 Framework for Analysis	29
3.3.1 Sustainable Forest Management Standards.....	30
3.3.2 EIA ‘best practice’	31
3.3.3 Combining EIA and SFM Standards.....	32
3.3.4 Principles and Parameters for Effective EIA in the Context of SFM.....	33
3.4 Study Participants	36
3.5 Data Collection and Framework Application	38
3.5.1 Document Review.....	39
3.5.2 Questionnaire.....	39
3.5.3 Semi-structured interviews.....	41
3.5.4 Engagement with the Community	43
CHAPTER 4	44
RESULTS	44
4.1 Principle 1: EIA institutional and planning framework is conducive to SFM practices.....	44
4.2 Principle 2: Spatial and temporal scale of EIA supports SFM practices	49
4.3 Principle 3: EIA facilitates maintenance or improvement of forest ecosystem health	52
4.4 Principle 4: EIA facilitates maintenance or improvement of human well-being.....	55
4.5 Value added by applying EIA to 20-year Forest Management Plans	60
4.6 Integrating effective EIA into SFM planning	62
4.6.1 Opportunities for the procedural integration of EIA into the FMP process.....	63
4.6.2 Challenges and constraints to integrating EIA into the FMP process	66
CHAPTER 5	70
DISCUSSION	70
5.1 Benefits of An Integrative EIA Framework.....	70
5.2 Linking other horizontal SFM processes under an integrated framework	72
5.3 Multiple Ideologies	75
CHAPTER 6	80
CONCLUSION.....	80
6.1 Improving the structure of EIA for Sustainable Forest Management	80
6.2 Research Contributions.....	83
6.3 Study Limitations.....	84
6.4 Future Research	86
REFERENCES	88

FIGURES

Figure 1.1 Conceptual models of contemporary EIA	7
Figure 3.2 The Mistik FMA area in a regional context, Saskatchewan, Canada.	28

TABLES

Table 3.1 Forest management agreements in Saskatchewan	27
Table 3.2 Principles and parameters for effective EIA in the context of sustainable forest management ..	35
Table 3.3 Study participants by affiliation.....	38
Table 3.4 Participant interviews by affiliation, method and date	42
Table 4.1 Frequency of questionnaire responses for parameters assessed under Principle 1	45
Table 4.2 Frequency of questionnaire responses for parameters assessed under Principle 2	49
Table 4.3 Frequency of questionnaire responses for parameters assessed under Principle 3	53
Table 4.4 Frequency of questionnaire responses for parameters assessed under Principle 4	56
Table 4.6 Frequency of interview responses for whether or not EIA and FMP should be integrated	62
Table A.1 Basic principles of ‘best practice’ EIA.....	98

ACRONYMS

AOP - Annual Operating Plan
CCFM - Canadian Council of Forest Ministers
CEA - cumulative effects assessment
CEAA - Canadian Environmental Assessment Agency
EAA - Saskatchewan Environmental Assessment Act
EARP - Environmental Assessment Review Panel
EIA - environmental impact assessment
EIS - environmental impact statement
ENGO - Environmental Non-Governmental Organization
FMA - Forest Management Agreement
FMLA - Forest Management License Agreement
FMP - forest management plan
FRMA - Forest Resources Management Act
FSC - Forest Stewardship Council
IAIA - International Association for Impact Assessment
IEA – Institute of Environmental Assessment
IFLUP - Integrated Forest Land Use Plan

MLTC- Meadow Lake Tribal Council
MOU- Memorandum of Understanding
NEPA- National Environmental Policy Act
SA- sustainability assessment
SEA- strategic environmental assessment
SERM – Saskatchewan Environment and Resource Management
SFM- sustainable forest management
SOE- State of Environment

APPENDICES

APPENDIX A.....	98
APPENDIX B	99

CHAPTER 1 INTRODUCTION

Is environmental impact assessment (EIA) an effective tool for environmental management? Environmental management is essentially the maintenance or improvement of the biophysical environment that is affected by human activity (see Barrow 1999). Since it was first introduced in the early 1970s, EIA has long been recognized as one of Canada's most important regulatory tools for environmental protection (Hickey et al. 2010). Over the past several decades, EIA has evolved as a concept and practice. Originating as a reactive regulatory control for environmental pollution identification and abatement, EIA is now perceived to be a more proactive, integrative, and comprehensive tool for environmental planning and management (see Gibson 2002; Gibson and Hanna 2005). To this effect, EIA may be considered effective, if it contributes to better environmental management. Or, more simply put, EIA as a process is effective if it contributes to better environmental management decisions. Yet, despite over 40 years of practice and a considerable amount of research, there lacks a comprehensive evaluation of the efficacy of EIA as a tool for ensuring improved environmental management of development actions (Bailey 1997; Boyden 2007; Cashmore et al. 2007), and the extent to which EIA has supported environmental management is largely unknown (Cashmore et al. 2004).

There are constant messages from regulators, academics, and practitioners of EIA expressing disillusionment, dismay, and scepticism that impact assessments are in fact contributing to better decision making (Fuggle 2005; Hilding-Rydevik 2006; Boyden 2007; Noble 2009). Academics have expressed a gap in understanding of the effectiveness of EIA, and identified a subsequent need to elaborate on and develop a firmer empirical and theoretical basis for the role of EIA in ensuring better environmental management outcomes (Cashmore 2004; Hilding-Rydevik 2006). To this effect, it is assumed that if EIA contributes to better environmental management decisions, a better managed environment will result. However, it is not that effectiveness studies have not been done; the problem is that when efficacy has been addressed in EIA theory and practice, the focus of attention has been on enhancing individual procedural components, rather than ensuring that better environmental decisions result from the application of EIA. Therefore, it has not been sufficiently identified which procedural factors of

EIA contribute to better environmental decisions overall. Individual topics such as stakeholder engagement (Diduck and Sinclair 2002), provisions for follow-up and monitoring (Morrison-Saunders and Bailey 1999), increasing the cost- and time-effectiveness of EIA (Voultier et al. 2008), and integrating cumulative effects science (e.g. Seitz et al. 2011) have received significant attention. However, a comprehensive set of the procedural factors necessary to ensure environmental management outcomes are reached as a result of the EIA decision has yet to become common knowledge. It is almost as if practitioners and academics, already burdened with the intricacies of EIA process and development, willingly blind themselves to this task (Cashmore et al. 2010). As McDonald and Brown observed, it may be because "...the requirement of EIA is that it be done rather than anything be done about it" (1995: 485).

There is no doubt that EIA is under threat at provincial, national, and international levels (Fuggle 2005; Boyden 2007), and this threat is mirrored in the significant gap in research and reporting on EIA effectiveness. Although EIA is widely accepted as an integral tool for environmental management, the relationship between EIA theory and its actual contribution to better environmental outcomes lacks systematic evaluation. Challenges remain in the theoretical development of EIA (see Fuggle 2005; Cashmore 2004), and in the extent to which procedural components of EIA have been focused on, while the more substantive issue linked to measuring and evaluating overall outcomes is rarely addressed (Doyle and Sadler 1996; Cashmore et al. 2004; Noble and Storey 2005). Where attempts have been made to address the overall effectiveness of EIA in light of its outcomes, frustration has been expressed over the absence of a well-defined and comprehensive set of efficacy criteria from which to base an assessment (Emmelin 1998; Hilding-Rydevik 2006). It has been suggested that further research is required, and administrators, practitioners and academics of EIA need to 'step-up' and make it their task to address these more substantive issues (Morrison-Saunders and Bailey 1999; Fuggle 2005; Hilding-Rydevik 2006; Cashmore et al. 2008). Calls are also made for EIA research to "focus more on theory about the nature and operation of diverse causal processes" (e.g., Cashmore et al. 2004: 295). Despite being a substantial task, there is a need for this work to be undertaken. This is especially the case for forestry, which has been not been consistently subjected to EIA, despite its significant environmental impacts and socio-economic importance (Hanna et al. 2011; Duffy 2004).

1.1 Research Objectives

Despite almost 40 years of EIA theory and practice in Canada, little is known of its efficacy for environmental management (Cashmore et al. 2004; Fuggle 2005; Hilding-Rydevik 2006; Boyden 2007; Hanna and Noble 2010). This is particularly the case in Canada's forest resource sector, which despite its predominance as a Canadian natural resource, has been described as an 'orphan' of EIA (Duffy 2004). The requirements for EIA of forest management vary considerably from province to province. Some researchers have suggested that the potential environmental effects of forest harvesting can be adequately managed by forestry companies, without any need for an EIA of proposed forestry operations (e.g. Taylor 1990; Bonnell 2003). Others have drawn attention to the enormous impacts associated with forestry and insist that EIA can provide critical benefits to forest management. For example, through the use of its integrative capacities (e.g. multi-disciplinary approach to assessment, participatory requirements, etc.) to reconcile diverse stakeholder values, interests and forest uses in planning and decision making (e.g. Duffy 2004; Hanna et al. 2011). In light of this controversy, there is good reason to study the effect of EIA application to forestry planning and practice. The overall purpose of this research is to examine the efficacy of EIA as a tool for environmental management, specifically within the forest sector. This will be accomplished based on a case-study of 20-year forest management planning in Saskatchewan's forest resource sector. The objectives of this research are as follows, to:

1. examine stakeholder understandings of, and expectations for, the role of EIA in 20-year forest management planning in Saskatchewan;
2. identify the perceived opportunities for and constraints to integrating effective EIA into forest management planning in Saskatchewan; and
3. advance the current knowledge and understanding of what constitutes effective EIA for forest management decision-making in Saskatchewan and environmental management more broadly.

1.2 Study Area

Saskatchewan is generally regarded as a prairie province; however, over 50 percent of the provincial landscape is comprised of boreal forest. Forestry is a significant contributor to the provincial economy, despite suffering losses in recent years due to difficult economic conditions (Government of Saskatchewan 2009), causing the closure of a major pulp and paper mill and the curtailment of production at other facilities. Despite market setbacks, the forest resource sector provides some of the greatest potential for growth in the province and plays an increasingly important role in the provincial economy and way of life (Saskatchewan State of Environment Report 2011; Government of Saskatchewan 2009). Forest operations in the province are undertaken based on a three-tiered licensing structure, of which the longest term and largest area licences are issued on 20-year terms under a forest management agreement (FMA). Forest companies wishing to enter into a 20-year FMA must develop a forest management plan (FMP) and, under *The Environmental Assessment Act*, complete an EIA of the plan.

Currently, environmental policy and legislation pertinent to both EIA and forest management are on the threshold of change. The Saskatchewan government has proposed major amendments to *The Forest Resources Management Act*, *The Environmental Assessment Act*, and *The Environmental Management and Protection Act* in favour of new ‘results-based regulation’ (Government of Saskatchewan 2009). The inclusion of the requirement for forest management planning in Saskatchewan EIA legislation in the early 1990s has been criticized for being too resource-specific and already within the purview of the legislation (Bowden and Weichel 2005). Yet, others have argued that it demonstrates a higher-order commitment to the integration of EIA with industry planning and decision-making processes (Noble 2004). Evaluating the efficacy of EIA within the context of 20-year forest management planning in Saskatchewan is opportunistic given the recent political spotlight on the sector and the potential for the results of this research to influence future environmental and natural resource management policy.

1.3 Theoretical Context

Environmental impact assessment emerged in reaction to growing concerns over environmental pollution and degradation. Introduced in the United States National Environmental Protection Act (NEPA) in the 1970s, EIA was a tool to identify and mitigate potentially adverse environmental effects from primarily industry and infrastructure development. Its objective, in principle, was to protect the biophysical environment from degradation and pollution (Gibson 2002). It wasn't until the 1980s that the added concept of sustainability broadened the scope of EIA to include not only the biophysical environment, but also social and economic aspects (Hanna and Gibson 2005). Sustainability, or sustainable development, is commonly defined as “development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs” (WCED 1987). This definition, stemming from the 1987 Brundtland report, brought together what is now known as the three pillars of sustainable development; economic development, social development and ecological development under one shared goal for sustainability. Flowing from this concept, the mandate of EIA in Canada and more broadly was expanded to include as an objective, the concept of sustainability (Gibson 2002). As others have noted, with the inclusion of the sustainability mandate, EIA evolved as a tool for ‘environmental management,’ as opposed to simply pollution prevention (see Hanna 2009; Noble 2010). Environmental management is a term given to activities which seek to maintain or improve the state of the biophysical environment affected by human interaction, demanding a multidisciplinary approach (see Barrow 1999). It has been stated that sustainability, or sustainable development gives a ‘vision’, or goal to environmental management (Mitchell 1997). Therefore, it follows that if sustainability is a goal of environmental management, and EIA is a tool employed to achieve environmental management, then sustainability will also be a goal of EIA. Throughout this thesis, given their nature, the terms ‘environmental management’ and ‘sustainability’ may often be used interchangeably due to the assumption that they are intrinsically linked. Furthermore, the efficacy of EIA, for the purpose of this research, is determined based on its contribution to sustainable forest management (SFM) in the context of Saskatchewan’s 20-year forest management planning process.

As EIA evolved and spread throughout the world, the way in which it was applied varied considerably from one context to the next. This may well have been due to the integrative and

multidisciplinary nature of the process, which has come to include natural and social sciences, data-intensive research methods, and the subjectivity associated with including the ‘public’ in the decision process. It has been argued that the rapid speed at which EIA entered the political constitution of nations worldwide has produced fractured, and at times, conflicting definitions of the fundamental purpose(s) of EIA (Cashmore 2004).

Cashmore (2004) characterizes EIA as a conceptual system of nebulous models, which may be seen as representing the range of views and expectations of EIA (Figure 1.1). The ‘applied science model’ suggests that the purpose of EIA is to employ scientific principles and procedures (e.g. formulate hypotheses) in the identification and evaluation of environmental impacts in order to advance the scientific understanding of human-environment interactions and reduce uncertainty in future EIAs (Cashmore 2004). Procedural aspects of this model are scientific and technical. At the polar end of this spectrum is the ‘civic science model’ of EIA, which suggests that its purpose is to influence decisions through the use of “pragmatic, inclusive and deliberative” forms of science and art (Cashmore 2004: 410-11). This model takes on a much more ‘civic’ role as evidenced by its focus on incorporating stakeholder involvement. It allows for decisions to be made subjectively and attempts to be more interpretive of the complex term ‘sustainable development’ (Cashmore 2004). Science in this model is much less conventional, as it is used to empower all stakeholders and not merely measurable and objective natural science-based outcomes to deliberate and make decisions. At the centre of this spectrum is the ‘information provision model’, which acknowledges the limited resources and time constraints present during the decision-making process and the need to use scientific ‘best practices’ versus exhaustive scientific research and hypotheses testing per se (Cashmore 2004). The goal of EIA in this model is that its results will inform environmental decisions and be implemented in subsequent environmental management actions (see Figure 1.1).

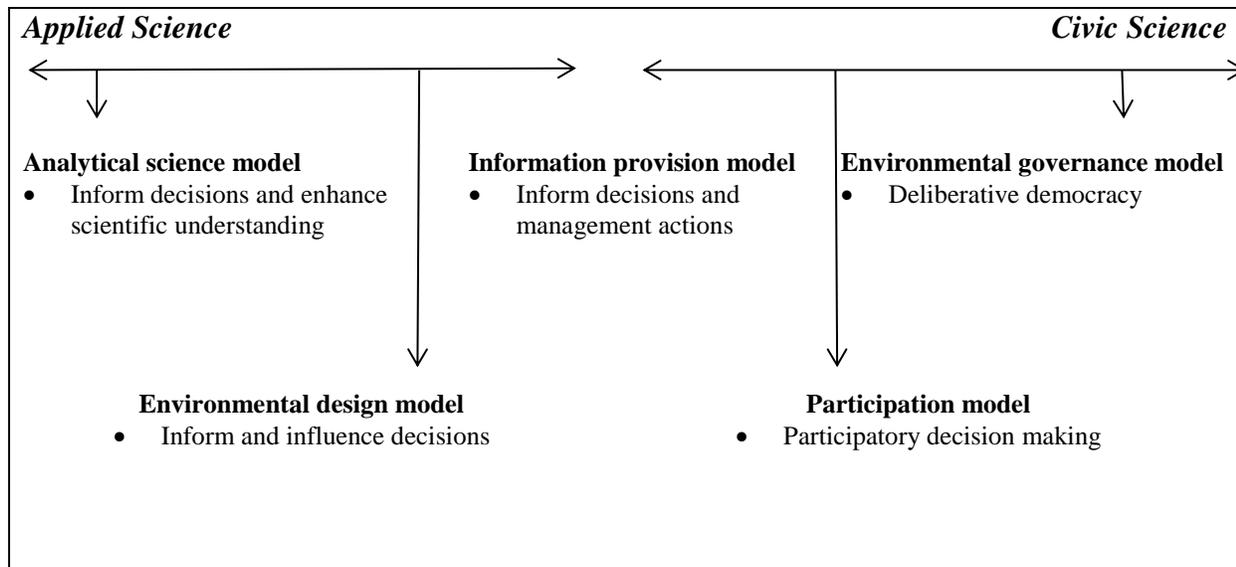


Figure 1.1 Conceptual models of contemporary EIA

Source: Adapted from Cashmore (2004)

Over time, Canada has experienced changes in the way it plans and manages its forest resources, and is now considered a global leader in SFM (CCFM 2012). Most of Canada’s forests are publicly owned and managed by federal, provincial and territorial governments, and each province and territory has legislation and regulations governing forest practices on public land. In 1872, the *Dominion Lands Act* designated the first commercial forest zones in Saskatchewan and allowed for commercial use of forests. Tree cutting regulations and fire protection measures were incorporated into this *Act*, however, “wasteful and deleterious practices were common” (Government of Saskatchewan 2007). Provincial control over forest resources was not obtained until 1930, and Saskatchewan’s first *Forest Act* was established in 1931. Traditional forest management planning and activities were largely focused on maintaining timber yields (Canadian Forest Service 2012), and sustainability was not written into provincial forest management legislation until 1999 when the Saskatchewan *Forest Resources Management Act* (FRMA) and *Regulations* replaced the *Forest Act* (Government of Saskatchewan 2007).

In Saskatchewan, forest management planning follows a hierarchical system consisting of a three part strategy. At the highest level is a provincially administered Integrated Forest Land Use Plan (IFLUP) which provides strategic direction to forest management plans (FMPs) and subsequent operating plans (Saskatchewan Environment Forest Service 2007). Forest companies wishing to harvest on Crown land for terms greater than five years must enter into a Term

Supply License (TSL), not to exceed 10 years (section 43(1) of the FRMA), or a Forest Management Agreement (FMA), not to exceed 20 years (section 34 of the FRMA). Pursuant to section 38(1) of the FRMA, FMA holders are required to prepare a FMP for the full term of agreement. The FRMA and *Regulations* provide a results-based framework for how forests are to be managed. Until 2007, there has been no documented process available to provide guidance on the development of FMPs, and it has been up to the FMA holder to decide on an approach based on their understanding of government expectations (Saskatchewan Environment Forest Service 2004). The concept of SFM planning in Saskatchewan evolved in response to the many demands on forest resources and society's expectations to maintain a steady wood supply while managing other forest values and resources (Saskatchewan Environment Forest Service 2004). The current approach to forest management planning in Saskatchewan now includes a Forest Management Planning Document (FMPD), established in 2007 (see Saskatchewan Environment Forest Service 2007). The FMPD was developed based on a review of the strengths and weakness of five other provincial forest management approaches in order to provide strategic-level direction to FMPs and TSLs with terms greater than five years.

The current approach to EIA in Canada most closely resembles the information provision model, characterized as “a short-term decision tool, driven by time and resource constraints, which is frequently conducted in an atmosphere of political and public controversy” (Cashmore 2004: 411). Others have criticized EIA for being an overtly political and not always rational process that may be ineffective to influence environmental decision-making (Culhane 1993; Bailey 1994; Sadler 1996). This is especially evident in the most recent revision of the *Canadian Environmental Assessment Act*, in which minimizing time delays associated with development approvals appears to be an utmost concern (see CEAA 2012). Cashmore (2004) argues for a return to the ‘basics’ of EIA, which involves identifying its fundamental purposes and subsequently identifying the best practices to evoke these outcomes. However, operationally defining the fundamental principles of EIA and what constitutes ‘efficacy’ in EIA to achieve these is no easy task. To date, EIA research has been largely fractured between applied science on the one hand: determining the procedural flow and decision-making process, and civic science on the other hand: responsible for disseminating EIA knowledge and only consequently stirring stakeholder consciousness through gradually increasing environmental awareness (Cashmore 2004).

In the evaluation of EIA efficacy as a tool for environmental management, it has been assumed that the information provision model forms the theoretical underpinning of current practice EIA. In the context of this research, the efficacy of EIA as a tool for environmental management is evaluated based on its contributions to SFM outcomes. In Saskatchewan's forest resource sector, the FRMA requires the application of EIA to 20-year FMP development and approval, pursuant to section 9.1(2) and section 15 of the Saskatchewan *EA Act*. As an information provision model, EIA is not applied to regulate ongoing forest management operations, but rather to "encourage better project design and to promote development that is sustainable" (Saskatchewan Environment Forest Service 2007).

1.4 Thesis Structure

This thesis consists of five chapters, following the Introduction chapter. Chapter 2 provides a review of the extant 'effective' EIA literature, focusing on the substantive purposes of EIA and identifying the real and perceived shortcomings of the tool to meet its intended objectives. Chapter 3 provides an overview of EIA application to forest planning, management and operations in Saskatchewan, and the thesis research methods. Chapter 4 presents the results, focusing on stakeholder perceptions of current practice and the value added of applying EIA to FMPs in Saskatchewan, as well as the barriers and opportunities for meaningful integration of the two processes. Chapter 5 discusses significance of the findings and makes recommendations to enhance the efficacy of EIA more broadly. The thesis is concluded in Chapter 6, where study limitations are discussed and opportunities for further research on EIA efficacy are addressed.

CHAPTER 2 LITERATURE REVIEW

Since EIA emerged in the early 1970s, much has been written about it. Its widespread use has been commented on (see Gibson 2002), its procedures have been analysed and criticized (see Cashmore et al. 2010), and new models have emerged (e.g. CEA, SEA, SA), and they too have been analysed and criticized (see Morrison-Saunders and Fischer 2006). However, despite over 40 years in practice little has been written about the substantive effectiveness of EIA, or more explicitly its overall contribution to decision-making for better environmental management. In the following sections the origin of EIA is examined from its beginnings in United States environmental policy and later situated and defined in the Canadian context. Then current criticisms and sources of disillusionment with the EIA process are identified. Following that, a brief overview of what constitutes effective EIA and how EIA as an environmental management tool can be evaluated is provided. Finally, an introduction to sustainable forest management is given to provide a background for the context of this study.

2.1 Environmental Impact Assessment

Environmental impact assessment originated in the United States in 1970 following the *National Environmental Policy Act* (NEPA) and out of rising awareness of environmental issues and growing concern for pollution abatement (Gibson 2002; Hanna 2005). Today, more than 100 countries worldwide employ EIA as a primary tool for environmental protection and management (Cashmore et al. 2004; Noble 2010). Fundamentally, EIA is a process meant to inform environmental decision-making in the early stages of planning by evaluating possible environmental effects and proposing plans to mitigate the adverse effects before development projects commence (Hickey et al. 2010). Procedurally, once a project proposal is deemed a ‘development’, the EIA process is initiated to assess the potential effects that are likely to occur. While the structure of an EIA process may vary based on the regulatory and legislative systems under which it operates, generally the procedural components of an EIA are undertaken systematically and are consistent with the following stages (see Noble 2010; Hanna 2005): *proposal, screening, scoping, impact prediction and significance assessment, review, decision* and if approved, *implementation and follow-up*. Once an environmental impact statement (EIS) is submitted for review and a decision is made as to whether the proposed project is likely to

cause significant effects, the proposal is either approved (with specific terms and conditions for the proponent to meet prior to implementation) or rejected (Noble and Bronson 2005). It is also expected that opportunities for *public participation* occur early and throughout the assessment process (Sinclair and Diduck 2001; Hanna 2005). Environmental impact assessment is expected to consider not only the technical design of the project and its perceived impacts on the biophysical environment, but also its socio-cultural and economic effects (Gibson 2002). The EIA process is intended to provide sound information to proponents and decision-makers. Above all, it is meant “to offer the environment- next to other public interests- a full-fledged position in decision-making processes” (Scholten 1992: 163).

It was not until the 1980s that the mandate of EIA was expanded to take account of broader environmental considerations in project selection and planning (Gibson 2002). Most importantly, from the 1980s to the mid-1990s, EIA shifted from a primarily reactive, impact identification and mitigation tool, to a more proactive and comprehensive instrument to consider sustainability goals, including socio-cultural and economic effects on the environment (Storey 1986; Bailey 1994; Gibson and Hanna 2005). According to the premier organization for EIA, the International Association for Impact Assessment (IAIA), the primary objectives of EIA are to:

- ensure that environmental considerations are explicitly addressed and incorporated into the development decision making process;
- anticipate and avoid, minimize or offset the adverse significant biophysical, social and other relevant effects of development proposals;
- protect the productivity and capacity of natural systems and the ecological processes which maintain their functions; and
- promote development that is sustainable and optimizes resource use and management opportunities (IAIA and IEA 1999: 2).

In recent years, it has been argued that despite its progress, the extent to which EIA is an “effective” process, capable of achieving its objectives for environmental management is questionable (Fuggle 2005; Hilding-Rydevik 2006; Noble 2009). Particularly following the inclusion of sustainability requirements in the 1990s, the process has been criticized for reaching beyond its capacity as an environmental management tool. Attempts to strengthen the process have been matched with efforts to streamline and make EIA more efficient, economical, and ‘user-friendly’. Added criticisms suggest that efficiency may be achieved at the trade-off cost of process efficacy (Hanna and Noble 2010). For example, in a December 2006 report issued to Her

Majesty's Treasury on Land Use Planning in England, major proposals were suggested to reduce the number of EIAs required in order to make land use planning more responsive to economic concerns (Boyden 2007).

2.1.1 EIA Development in Canada

Canada was the first country to follow the US NEPA by implementing the federal Environmental Assessment and Review Process (EARP) by way of a guidelines order in 1973. Over the next two decades, EIA expanded to the purview of Canada's territorial and provincial governments. Since the 1980s, EIA has grown to be considered "one of the more consistent and unquestionably powerful instruments for environmental management" (Hanna 2005: 4). It was not until 1995 that EIA was proclaimed into force at the federal level under the *Canadian Environmental Assessment Act*. Under the *Act*, EIA is defined as "a process to predict the environmental effects of proposed initiatives before they are carried out" (CEAA 2010). Despite what has been considered a slow and uneven evolution of EIA policy and law in Canada (Gibson 2002), it is now legislated in every Canadian province and territory.

Since the mid-1990s, provisions within EIA's principal mandate to protect the environment against the adverse effects of development, have been extended to include proactive sustainability goals to maintain or enhance environmental and socio-economic well-being. According to the original 1992 *Canadian Environmental Assessment Act*, the purpose of EIA is to provide an "effective means of integrating environmental factors into planning and decision-making processes in a manner that promotes sustainable development" (CEAA 1992). A revised *Canadian Environmental Assessment Act* was passed on July 6, 2012 in response to Canada's current economic and environmental context. The intent of the new *Act* is to offer a more modern approach to EIA that allows for "natural resources to be developed in a responsible and timely way for the benefit of all Canadians" (CEAA 2012). The revised *Act* adds a stated focus on procedural efficiency (see Parliament of Canada 2012), that some would argue may result in a weakened process overall (Morrison-Saunders and Fischer 2006). To date, as some will argue, it appears as though EIA has developed more in theory than it has delivered in practice (MacDonald and Brown 1995; Sadler 1996; Cashmore et al. 2004). Implications of the evolution of EIA in Canada show a wide variation in application, scope, and process that are perhaps due to changing government mentality, societal expectations, and economic situations over time (Couch 1988; Gibson 2002). In particular, the outcomes of early non-legislated EIA approaches

compared with later law-based obligations mark this varied and inconsistent implementation. According to Gibson (2002), governments have consistently resisted advancing EIA because it forces them to adopt broader obligations, become subject to public scrutiny, and cede to other jurisdictions or bodies, a portion of their independent authority. However, since the early 1930s, federal governments have been turning legislative power over to provincial jurisdictions to manage, in particular, natural resources (Noble 2010). For example, the new *Canadian Environmental Assessment Act* requires that when the task of a federal-level EIA can be met by a provincial process, it must “allow for the substitution of the federal environmental assessment process by the provincial process” (CEAA 2012: Overview). As a confederation, federal-level assessments are not explicitly binding on provinces and territories, and in effect provincial and territorial assessments do not necessarily inform other provincial/territorial or federal processes. In order to facilitate coordinated EIA approaches between the government of Canada and the provinces and territories, an accord was signed in 1998 by the Canadian Council of Ministers of the Environment to improve inter-jurisdictional cooperation (VanNijnatten 2002; Meredith 2004).

Efforts to harmonize EIA systems between federal and provincial authorities have not always been matched with efforts to strengthen the process towards more effective and integrated planning and decision making. Concerns with procedural inefficiencies such as time and cost barriers as well as duplication with other processes (both inter- and intra-jurisdictionally) have been tied to fears that EIA demands and inefficiencies will deter economically attractive development (Gibson 2002). This has resulted in many provinces undertaking major overhauls of their environmental regimes. Some have consolidated environmental legislation in large ‘omnibus’ statutes, reorganized government departments, reduced environmental budgets, and/or deregulated previous environmental protection and management safeguards (VanNijnatten 2002). For example, shortly after the *Canadian Environmental Assessment Act* was proclaimed into force in 1995, a newly elected Conservative government in Ontario initiated a review process to reduce unnecessary regulatory barriers to economic development. This resulted in amendments to almost all environmental and natural resources legislation, as well as the elimination of five environmental agencies, and deep staff and budget cuts to Ontario’s Environment Ministry. As a result, 45 percent cuts to the provincial budget were made and 30 percent of the Ministry staff was lost (VanNijnatten 2002).

Other provinces have followed a similar trajectory as Ontario, with Alberta integrating nine environmental statutes into one ‘Act’ in the early 1990s, and Newfoundland consolidating six statutes into one Environmental Protection Act in 1997 (VanNijnatten 2002; Noble 2010). This too is occurring at the federal level. With the release of the revised *Canadian Environmental Assessment Act*, federal EIA underwent major revisions in favour of increased efficiency. Specific requirements for small project assessments have been eliminated, impacts on renewable resources no longer require assessment, and the timeline for major reviews has been reduced to a maximum of 24 months (see CEAA 2012 for full report).

2.2 Disillusionment and Dismay

In recent years, there is a growing concern that EIA is not delivering on its stated objectives (McDonald and Brown 1995; Sadler 1996; Lawrence 1997; Cashmore et al. 2004). Former president of the IAIA addressed this concern (Fuggle 2005: 1):

...in my personal experience, everywhere and across the spectrum of persons, there is a common theme: disillusionment with measures designed to promote sustainable development, and scepticism that impact assessments are in fact contributing to better decisions, be they environmental or economic, health or heritage, social or strategic in nature.

The following four ideas were put forth as potential causes of the demise of EIA credibility in recent years: i) too many things are being expected from EIA; ii) the fundamental principles of EIA are not being consistently applied; iii) there is a lack of political appetite for EIA; and iv) there is a universal lack of follow-up and enforcement in EIA (Fuggle 2005). Others have reported that overall, EIA suffers from weaknesses in terms of coverage (Duffy 2004; Hilding-Rydevik 2006), impact monitoring and enforcement (Polonen et al. 2011; Noble and Birk 2011), public participation (Diduck and Sinclair 2002; Sinclair and Diduck 2005), and integrating the EIA into decision-making (Gibson 2002; Cashmore 2004; Cashmore et al. 2010). In the following sections, these weaknesses and potential causes for disenchantment with the EIA process are explored. This is done primarily to better understand the causal link between current EIA practice and the growing concern and disillusionment with its outcomes. By identifying the larger scale issues, it is hoped that smaller scale impacts may be better understood (Conley and Moote 2003). Cashmore (2004) suggests a return to the fundamental purpose(s) and goals in the study of EIA may be conducive to a more honest understanding of what can and cannot be

expected as outcomes of the process. In addition to this, identifying and exploring the perceived pitfalls of current EIA, similar to the way in which EIA itself seeks to identify the potential adverse effects of development, may inspire mitigation and elimination of inefficiencies in future EIA decision making. Therefore, following up with the causes of discontent in EIA is important to better understanding the potential for its effectiveness.

2.2.1 Expectations

Cashmore et al. (2004) agree with Fuggle's first observation, suggesting that in the formative years of EIA practice, specifically 1970-1990 (see Noble 2009), researchers and practitioners envisioned EIA as the chief informant of rational environmental decision-making. This was based on the assumption that correctly identifying the potential adverse effects of a proposed development would, on its own, lead to better environmental decision-making, and thus be conducive to better, more sustainable, environmental management. However, expecting project-based EIA to better inform and lead to long-term sustainability outcomes, especially when the proponent of development's interest is with achieving the minimum level of impact mitigation necessary to obtain project approval, may be a far-fetched notion (Morrison-Saunders and Bailey 2009; Noble 2010). Without a strategic framework in place to guide EIAs toward sustainability objectives, expectations that EIA decisions will inevitably follow this trajectory may be unwarranted. Others have agreed and suggested that the accomplishments of EIA appear much greater when compared to past environmental neglect than when measured against sustainable development goals (Gibson 2002; Cashmore 2004). Therefore, identifying what can reasonably be expected as an outcome in each EIA application is important to evaluating its effectiveness.

Fuggle (2005) also argues that conflicting interests among stakeholders exacerbate the capacity for EIA to satisfy all parties involved. There is a real need for the public and decision-makers alike to become better educated on the attainable aspirations and limitations of EIA as a process. Particularly, what is considered 'effective' EIA is largely subjective and has a tendency to vary between regulatory systems, resource sectors, and amongst proponents and the public (Hanna 2009; Morrison-Saunders and Bailey 2009). In addition to 'efficacy' in EIA lacking a broadly accepted definition, some authors argue that fundamental EIA theory is also poorly defined and inadequately developed (Lawrence 1997, 1994; Cashmore 2004). Without a substantive understanding of the theoretical nature of EIA as it originated and evolved, it will be

difficult to fully understand in what capacities EIA will, or can be, effective. The trend within the research community has been to focus on the procedural aspects of EIA, with little emphasis on substantive outcomes and theory advancement. This has caused the evaluation of EIA as an effective tool for environmental management to become fragmented and vague. For EIA to restore its effective capacity, all researchers, practitioners, and users of the tool will “need to appreciate what it is and what can be expected from it” (Fuggle 2005).

2.2.2 Applications

The second source of disillusionment, according to Fuggle (2005), is due to the inconsistent application of fundamental principles of EIA. According to the IAIA, the basic principles of EIA (see IAIA and IEA 1999) should be applied as a single package in order to ensure that EIA delivers on its purpose and objectives and meets internationally accepted standards. However, the theoretical principles of EIA ‘best practice’ set out by the IAIA (see Appendix A) may make it difficult for this task to be accomplished in practice. For example, two basic principles stated by the organization are that EIA is “efficient” *and* “rigorous” (IAIA and IEA 1999). If EIA is applied within a system that places a high value on time and cost efficiency, it is not unreasonable to assume that fulfillment of the former (i.e. efficiency) could come at the expense of the latter (i.e. rigour). This is especially relevant in the context of Canadian EIA, which newly revised legislation states minimizing time lags as an explicit goal (see CEEA 2012). This may represent a fundamental tension in the application of basic EIA principles if there is temporal conflict between the need to respect social and ecological complexity and the need to expedite the process in order to “make decisions and get on with life” (Gibson 2002). It has been argued that when the basic principles of EIA are not respected the process becomes nothing more than an administrative exercise (McDonald and Brown 1995; Fuggle 2005). Others agree, suggesting that too much emphasis on the process of EIA is responsible for overshadowing evaluations of its substantive outcomes (Sadler 1996; Cashmore 2004). For example, evaluations of individual operating steps of EIA application (e.g. screening, levels of participation, methods for impact management, etc.) may be important as indicators of efficacy. However, when these evaluations do not show links between procedural compliance and realized environmental outcomes, it may be difficult to know whether they are in fact necessary to the overall efficacy of EIA.

As a result, little is known of the effectiveness of EIA as a tool for environmental management, and the causal link between EIA and this goal is often among the most understated and underexplored relationships in EIA research and practice (Hanna and Noble 2010). This is especially evident in the relationship between forest management planning and EIA (Noble 2004; Gachechidaze et al 2009), which is often not well defined and thus the potential benefits of applying EIA to forestry are left unstated (Bonnell 2003). In the Canadian forestry sector, EIA is inconsistently applied to the development and management of forest resources. For example, in some provinces (e.g. British Columbia) EIA is not applied to forestry, while in others (e.g. Saskatchewan) it is applied to long-term forest management plans (FMPs). The fragmented nature of national requirements for forest management planning provides a good opportunity to compare the presence and absence effect of EIA, since provincial regulations determine whether or not, and to what extent, EIA applies. As a result, there is a number of differing EIA approaches undertaken across Canada (see Bonnell 2003). The forest sector also has far ranging resource and environmental quality impacts (Hanna et al. 2011), and there is debate about the utility of EIA for forest resource management (Taylor 1999; Hanna and Noble 2010).

2.2.3 Political Objectives

It has been identified that a lack of political appetite for EIA is adding to the loss of its credibility in practice (Fuggle 2005). From its inception in the 1970s, up to present day, it has been argued that nowhere in its evolution, has EIA reached a satisfactory level of integrated planning and decision-making for sustainability (Gibson 2002). Environmental impact assessment development in Canada also appears to be lagging, with weakened systems from previous standards in both Ontario and British Columbia noted at the beginning of the decade (Gibson 2002; Hanna 2005). It has been argued that in times of economic downturn, or when right-wing political parties assume power, the environment is viewed as a cost and is often sacrificed in favour of economic growth and development (Hanna 2005).

In Canada, reforms recently provided for exemption from federal EIA certain infrastructure projects funded under the Building Canada plan in order to streamline decision-making and help kick-start the economy. As noted earlier, the 2012 *Canadian Environmental Assessment Act* also allows for small projects to be excluded from assessment. In addition, it

restricts the timelines for public consultation and review of large energy and resource development projects. It may be true that the minimization of cost and time associated with EIA tends to increase the efficiency of the process, as Hilding-Rydevik (2006) notes. It may also be the case that such streamlining may in the short-term be beneficial for the proponent of development and the government agency responsible for its administration. However, it has been suggested that in the long-term, this streamlining may be a considerable cost to environmental protection and management goals (Sadler 1996; Noble 2009). Ultimately, the decision to implement the results of an EIA is political and based on factors including but not limited to environmental impacts (Cashmore et al. 2010). Consequently, when the use and advancement of EIA is met with political apathy, it may be the case that no matter how well-done the EIA is, if its results are not implemented in the decision it will have little effect on environmental outcomes.

2.2.4 Meaningful Monitoring

A final cause for disillusionment in EIA, as argued by Fuggle (2005), is the universal lack of follow-up and enforcement of its provisions and findings. The outcomes of EIA are not being reported to the broader EIA community, making the extent to which EIA is effectively contributing to environmental management questionable (Bailey 1997; Jay et al. 2007; Morrison-Saunders and Bailey 2009). The need for follow-up in EIA is not new (see Gachechiladze et al. 2009; Noble and Birk 2011). Without it, 'bad practice' is not exposed, those responsible are not held accountable, and ineffective mitigation measures may be perpetuated in future practice (Fuggle 2005; Noble and Storey 2005; Hilding-Rydevik 2006). Without post-development monitoring and follow-up, effective outcomes (e.g. better managed environments) will not be detected and factors leading to them will be left unidentified (Clark 2002). Others add that experience and learned outcomes are rarely a focus in the literature surrounding EIA, or are formulated in abstract terms, making the cumulative and problematic lack of follow-up and monitoring at times undetectable (Morrison-Saunders and Arts 2004; Noble 2009).

2.3 Effective Environmental Impact Assessment

EIA is now widely accepted as an integral tool for environmental management. Yet, the relationship between EIA theory and its actual contribution to this goal in practice lacks systematic evaluation and remains underexplored in EIA literature (Hilding-Rydevik 2006). Challenges remain in the theoretical development of EIA (see Cashmore 2004; Fuggle 2005), and due to the preponderant focus on procedural components in EIA literature, the more substantive issue of addressing overall efficacy remains underrepresented at best (Doyle and Sadler 1996; Cashmore et al. 2004; Noble and Storey 2005). Therefore, the extent to which EIA is an effective tool for environmental management remains largely unknown, and no widely-accepted definition of what constitutes effective EIA exists.

Where the literature does attempt to address effectiveness in the context of EIA it has been defined as a measure of goal attainment (Doyle and Sadler 1996; Morrison-Saunders and Bailey 1999; Hanna 2009; Cashmore et al. 2010), or “whether better decisions follow and environmental objectives are realized” (Sadler 1996: ii). However, as Hilding-Rydevik (2006: 25) notes, “[w]ithout clear, realistic and context specific aims and goals we will encounter significant difficulties in creating prerequisites to evaluate and make EIA systems and processes effective”. Others agree that the reassertion of the fundamental goals of EIA is necessary in order to improve decision-making and determine its effectiveness (Cashmore 2004; Jay et al. 2007; Heinma and Poder 2009). Some have identified the following as underlying goals of EIA and suggested that attainments of these goals are indicators of its efficacy:

- information generated in the EIA contributes to and informs decision-making (Caldwell 1993; Sadler 1996; Cashmore et al. 2004; Hilding-Rydevik 2006);
- involved actors are satisfied with results of the EIA decision (Heinma and Poder 2009);
- impacts were correctly predicted and minimized as a result of the EIA (Sadler 1996; Wood 1999); and,
- EIA contributes to the advancement of long-term sustainability (Cashmore et al. 2004; Gibson 2006).

In the absence of a comprehensive set of normative efficacy criteria and means to evaluate the EIA system based on its outcomes for environmental management, it has been suggested that the focus of EIA evaluations ought to be on whether it has achieved its goals for environmental management (Moote and Conley 2003; Cashmore et al. 2004). However, others

have advised that measuring the substantive contributions of EIA to environmental management and its intrinsically linked sustainability goals cannot be realized through project-based EIA alone (Morrison-Saunders and Fischer 2006; Sinclair et al. 2008). In order to be effective in this regard EIA may require a more regional and/or integrative approach (Noble 2010; Hanna et al. 2011). It has also been said that it ought to be the task of practitioners and academics of EIA to address issues of effectiveness (Fuggle 2005; Morrison-Saunders and Bailey 2009; Cashmore et al. 2010).

Calls are also made for research to “focus more on theory about the nature and operation of diverse causal processes” in EIA (Cashmore et al. 2004: 295). Despite being a substantial task, there is a need for this work to be undertaken. Also expressed is a need to “sharpen and develop” the implementation of EIA in order to realize the societal benefits of the environmental management tool (Hilding-Rydevik 2006: 24). Recent expressions of disillusionment and dismay with current state-of-the-art EIA at provincial, national, and international levels (Fuggle 2005; Boyden 2007; Noble 2009) and the significant gap in research and reporting on EIA outcomes leave the extent to which EIA is achieving its goal for environmental management unclear.

2.4 Assessing Effectiveness in Environmental Management

Traditionally, evaluating the outcomes of human development on the biophysical environment has been done outside of the purview of EIA. This evaluation is typically referred to as environmental monitoring and uses tools such as environmental audits to collect data and publish findings (e.g. in a state of the environment (SOE) report) (Mitchell 1997). Emerging in the late 1980s, these tools came with an overwhelmingly scientific and economic mandate. Typically, SOE reporting largely monitored physical environmental changes in air and water quality in a given natural resource sector. Whereas, environmental auditing focused on identifying the most cost-effective, efficient, and public-image friendly practices between proponents and the environment (Mitchell 1997). However, evaluating the effectiveness of environmental management efforts has proven to be a far greater task.

Recently, calls have been made to assess the outcomes of EIA as a tool for environmental management (e.g. Cashmore 2004; Fuggle 2005; Hilding-Rydevik 2006). It has also been suggested that whether or not EIA’s environmental management efforts have led to improved

environmental conditions, is the ultimate measure of its success (Noble 2009). Such substantive evaluations have yet to be undertaken, given the complexity associated with linking management efforts (e.g. EIA) with specific environmental outcomes (e.g. improved water quality, increased biodiversity, etc.). This may also be especially difficult given that the term ‘environment’ as it relates to EIA is often not solely defined by aspects of the biophysical environment. For example, “environment” in the *Saskatchewan Environmental Assessment Act* is defined as:

- i. air, land and water;
- ii. plant and animal life, including man; and
- iii. the social, economic and cultural conditions that influence the life of man or a community insofar as they are related to the matters described in subclauses (i) and (ii).

Therefore, evaluating the effectiveness of EIA may require the incorporation of socio-cultural and economic factors and multiple other indicators ranging beyond biophysical impacts. For example, some have identified the need to evaluate the complex dynamics of politics and power in efficacy studies (Cashmore et al. 2010). However, seeking to choose between or reconcile multiple indicators deemed sufficient to evaluate environmental management outcomes may prove insufficient (Cashmore et al. 2010). Conley and Moote agree that all evaluations of this nature are inherently political and such a comprehensive evaluation would require “an inordinate amount of time and effort” and are therefore not advisable (2003: 376). However, they suggest that the extent, to which an environmental management tool (e.g. EIA) is effective, can be evaluated by comparing its outcomes with its stated goals (e.g. it produces better environmental decisions). According to Conley and Moote (2003), the effectiveness of environmental management processes can be evaluated using three broad methods: measuring tangible outcomes (e.g. ecosystem health), measuring participant perceptions (e.g. opinions about the process and its outcomes), and participant observation (e.g. in-depth analysis of process and context characteristics).

2.5 Sustainable Forest Management

The need for sustainable management activities has been clearly articulated in the Brundtland report (WCED 1987). A major conclusion of the report was that in order for present levels of development to be sustained, the biophysical integrity of the environment must be

protected (Dunster 1992). Sustainability has commonly been held as the primary goal of forest management in the 21st century (Briner 2004). This has specifically come about as a result of the 1992 Earth Summit, or United Nations Conference on Environment and Development (UNCED), which called for the sustainable management of forests (Montreal Process Working Group 1998). Following the UNCED, Canada held an International Seminar of Experts on Sustainable Development of Boreal and Temperate Forests in Montreal in 1993. The purpose of this seminar was to establish a working set of criteria and indicators from which to define and measure progress towards sustainable forest management (Montreal Process Working Group 1998).

Prior to the onslaught of sustainability initiatives being undertaken following the report of the Brundtland Commission in 1987, Canada's approach to forest management was primarily to maximize timber yields (Charron 2005). However, due to an increasing awareness that forest ecosystems are intrinsically complex and reached beyond the immediate questions of where to build roads and how to log trees, Canadian forest policy began to incorporate sustainability into its mandate (Dunster 1992). Sustainable forest management is concerned with striking a balance among all forest users, while ensuring that its ecological functions continue to produce benefits now and into the future (Charron 2005). The Canadian Forest Service (2001) defines sustainable forest management (SFM) as:

Management that maintains and enhances the long-term health of forest ecosystems for the benefit of all living things while providing environmental, economic, social and cultural opportunities for present and future generations.

Evaluating the outcomes or success of SFM requires the development and implementation of measures designed to assess its progress. The Montreal Process began meetings in June 1994, in Geneva, Switzerland, with the intent to develop a comprehensive set of criteria and indicators for this purpose. Following six meetings, the Montreal Process Working Group comprised of ten member nations, passed the *Santiago Declaration* in 1995 (Montreal Process Working Group 1998). The *Declaration* consisted of seven criteria and 67 subsequent indicators for SFM (see Santiago Declaration 1995).

The development of criteria and indicators for SFM was not met without challenges, particularly those associated with achieving international agreement (Charron 2005). However,

the development of SFM measures in Canada has kept relative pace with those initiated at the global level. In 1992, the National Forest Strategy required the development of a national set of criteria and indicators of SFM, which the Canadian Council of Forest Ministers (CCFM) published in 1995 (see CCFM 1996). Criteria and indicators are practical, science-based measures used to collect and track data over time, and are a useful tool to measure, monitor and track progress toward SFM (Canadian Forest Service 2012). Criteria represent the environmental, economic, and social values to be maintained or enhanced through SFM efforts. Indicators are parameters that correspond to a particular criterion and can be measured and supported by data. Sustainable forest management criteria and indicators were developed in response to Chapter 11 of Agenda 21, adopted during the UNCED, which called for the formulation of “scientifically sound criteria and guidelines for the management, conservation and sustainable development of all types of forests” (Rio Declaration on Environment and Development 1992: Ch. 11.22(b)).

Today, numerous international and Canadian institutions, policies, and frameworks are used to define, regulate and monitor SFM activity and progress (Charron 2005). As mentioned in section 2.3, evaluating the effectiveness of environmental management systems may be accomplished by evaluating its outcomes compared to its goals (see Conley and Moote 2003). However, monitoring for SFM progress has been called impossible, “or at least not easily defensible, if the goals and predictions are made solely in qualitative terms” (Dunster 1992: 77). Therefore, in order to evaluate the outcomes of SFM it is necessary to set boundaries around what is to be assessed. Criteria and indicators are in place at the national and international level to describe and assess the environmental, economic and social aspects of SFM and are a useful and objective measure of SFM outcomes. According to the United Nations Food and Agriculture Organization, SFM criteria and indicators help build bridges between forestry stakeholders, inform policy, assist in communicating with the public, and are a means to influence SFM decisions (FAO 2008). Following from the theoretical context of this research which warrants a return to the fundamental purposes and goals of environmental management tools (e.g. EIA, SFM criteria and indicators), it is assumed that the definition provided by the Canadian Forest Service (2001) for SFM, will also provide a suitable basis from which to set boundaries to measure its success. Therefore, simply put, SFM efforts may be considered effective if over the

long-term and for the benefit of all living things, they maintain and/or enhance forest ecosystem health, while providing environmental, economic, social and cultural opportunities.

CHAPTER 3

RESEARCH METHODS

A combination of methods was used to examine stakeholder understandings of and expectations for the role of EIA in 20-year forest management planning in Saskatchewan, Canada. Research was undertaken using mixed methods, combining data from documents, questionnaires, and interviews to provide a comprehensive and congruent analysis of stakeholder viewpoints (see McLafferty et al. 2010). Forest industry and stakeholder interactions were also observed through ongoing researcher engagement within the study area. This chapter describes and provides reasoning for each method used in this research. It begins with an introduction to EIA application in Saskatchewan's forest resource sector and the strategy used to identify participants for this research. It then follows with a description of, purpose for, and approach to each of the methods used to collect and analyse data.

3.1 Environmental Impact Assessment in Saskatchewan's Forestry Sector

Saskatchewan adopted EIA in 1976 as a guidelines order, which became law in 1980 as *The Environmental Assessment Act*. This required that a project deemed a 'development' under section 2(d) of the *Act* receive approval from the Minister of Environment prior to implementation. A project is deemed a 'development' if it is likely to: affect a unique, rare or endangered feature of the environment; substantially use a provincial resource; emit a pollutant or unregulated waste; cause widespread concern about environmental change; involve a new technology; or cause a significant impact. In the early 1990s, recommendations made by a Saskatchewan Environmental Review Panel (SERP) included subjecting certain forest management activities to EIA prior to approval. In 1996, an amendment made to the Saskatchewan *EA Act*, added Section 9.1, in which 'forest management activities', undertaken as part of a FMP (defined in the Saskatchewan *Forest Resources Management Act*), are defined as 'developments' and subject to provincial EIA.

Companies or individuals wishing to harvest on Saskatchewan Crown for terms greater than five years land must receive a Term Supply License or enter into a Forest Management Agreement (FMA) with the Province, for terms extending up to 20-years. Under this agreement,

the Minister of Environment grants a license to the interested company to harvest timber and forest resources on Crown land for up to 20 years. As part of the FMA, a 20-year Forest Management Plan (FMP) is required pursuant to Section 38(1) of the FRMA. The FMP must be submitted and approved “prior to commencing any activity authorized by a forest management agreement” for the full term of the agreement (Saskatchewan *Forest Resources Management Act* 1996). The FMP must undergo an EIA for approval prior to commencement of forest activities. In addition to this requirement, the proponent or licensee must also submit a five-year operating plan to the Minister annually. Once every 10 years, a revised FMP must be submitted for renewal of the full term of the agreement (Saskatchewan *Forest Resources Management Act* 1996). An EIA is not required to approve the 10-year renewal of plans, unless there are proposed FMP or operating changes that do not conform to the terms and conditions of the original EIA approval.

The FMP typically includes a description of proposed activities (e.g. harvest, access, replanting), an estimation of anticipated positive and negative environmental impacts, as well as foreseeable mitigation measures in response to any adverse impacts. Since FMPs are legally deemed a ‘development’ under Section 9.1 of the *EA Act*, the EIA process is automatically triggered upon submission of the FMP. From there the licensee is required to prepare and submit an environmental impact statement (EIS). This is done according to the terms of reference or project-specific guidelines set out by the provincial Environmental Assessment Branch. Pursuant to Section 10 of the *EA Act*, the Minister is required to notify the public of the proposed forestry development. This requirement is typically met through local and province-wide newspaper publication, announcement on the department’s website, or “in any manner that may be prescribed in the regulations” (Saskatchewan *Environmental Assessment Act* 1980). Generally, the EIS contains a description and rationale for the project and a description of alternative development strategies. As well, characteristics of the current environment, identification of potential impacts, mitigation plans, and plans for monitoring and follow-up are included (Bowden and Weichel 2005).

3.2 Mistik Forest Management Agreement Area

Four FMAs exist in Saskatchewan (Table 3.1). The Mistik Management Ltd. FMA (Mistik FMA) was chosen as the primary focus for this research. Mistik (then NorSask Forest Products) was the first forest company in the province to undergo a full EIA of their 20-year

FMP, which was approved in 1997. Prior to this, no precedent had been set at either the provincial or national level from which to base an assessment of long-term forestry proposals. Pursuant to requirements set by the FRMA and the *EA Act*, FMPs must be renewed every 10 years. Mistik is the first forest company in Saskatchewan to complete a 10-year renewal of its FMP. Therefore, timing is opportune to study the outcomes of EIA application to the FMP. The Mistik EIA process is well documented and both the original EIS and FMP documentation are available. Timing is also ideal to identify follow through of any commitments or deviations from the original FMP. Finally, the forest industry in Saskatchewan has taken an economic downturn in recent years. This has resulted in hard times for forest companies and the transfer of use rights from one major company in the north of the province to a new forest manager. Despite this, Mistik has remained intact and operative, allowing for consistency in implementation of its forestry plans and operations.

Table 3.1 Forest management agreements in Saskatchewan

FMA Holder	Date of FMA Issue	FMA Amendments and Related Dates	FMP Approval Date
L&M Wood Products Ltd.	March 7, 1987	January 9, 2008, FMA assigned to L&M Wood Products Ltd. Partnership	November 18, 1999
Mistik Management Ltd.	June 17, 1988	February 2, 1989, amendment August 18, 1989, amendment June 27, 1990, amendment April 24, 1998, FMA assigned to Mistik Management Ltd. November 1, 2002, FRMA required amendment agreement to reflect change in development	May 13, 1997, original approval June 24, 2009, new FMP approval (effective April 1, 2007)
Pasquia-Porcupine FMA- Weyerhaeuser Saskatchewan Ltd.	May 14, 1999	November 1999, FMA transfer from SaskFor MacMillan Ltd. Partnership	May 13, 1999
Prince Albert FMA- Sakaw Askiy Management Inc.	October 16, 2010	November 1, 2010, FMA transfer from Weyerhaeuser Saskatchewan Ltd.	January 26, 2001 (currently operating under existing Weyerhaeuser FMP)

Adapted from Saskatchewan State of Provincial Forest Report, 2009.

The Mistik FMA is located approximately 300 kilometres north/northwest of the City of Meadow Lake, Saskatchewan (Figure 3.2). The FMA was established in 1988 after a forest management license agreement (FMLA) was entered into between NorSask Forest Products Inc. and the Province of Saskatchewan. Mistik Management Ltd. is a Meadow Lake company jointly

owned by NorSask Forest Products Inc. and Millar Western Pulp Ltd. Mistik was formed between industry partners in 1988 with a mandate to achieve “effective and co-operative management of the total forest resources of the NorSask Forest” (Mistik EIS 1995, Ch.1-1). Mistik is responsible for managing all forest operations as well as supplying wood to mills operating in Meadow Lake.

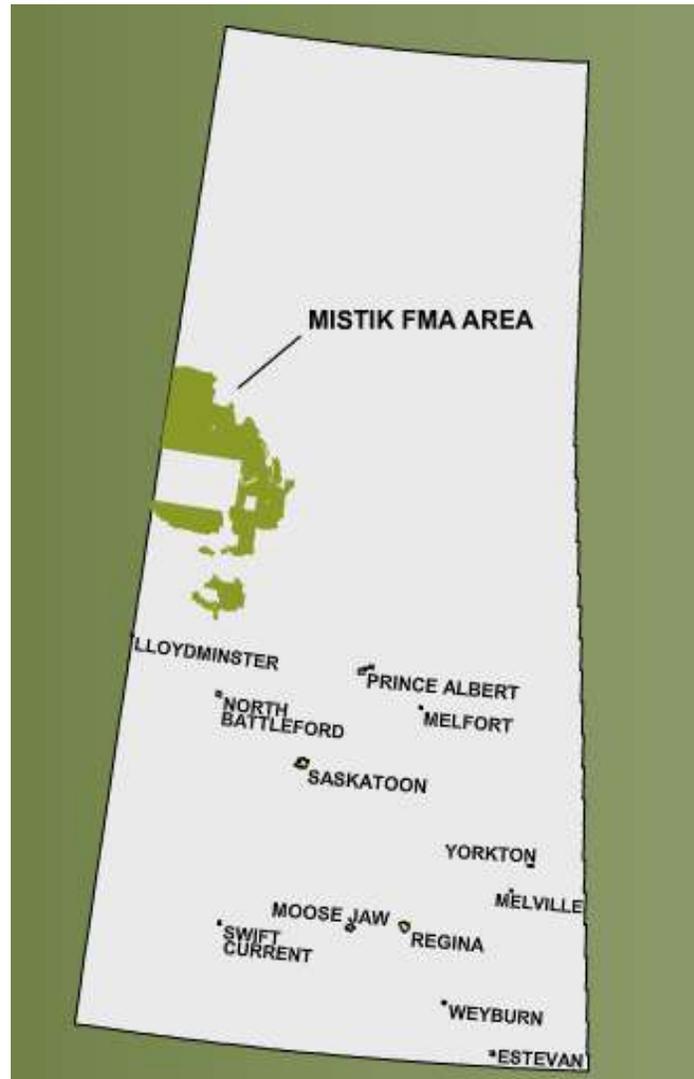


Figure 3.2 The Mistik FMA area in a regional context, Saskatchewan, Canada.
Source: Mistik Management Ltd., 2007.

The FMA encompasses over 3 million hectares and harvests approximately 1.7 million hectares of boreal forest in the northwest of the province. Socio-economic activities in the FMA area traditionally include forest harvesting, hunting, fur harvesting, fishing, and oil and gas exploration and development (Government of Saskatchewan 2009). Two major watersheds exist

in the FMA, namely the Saskatchewan River Drainage Basin and the Churchill River Drainage Basin. Prior to 1988, the former NorSask Forest Products Inc. primarily utilized softwood lumber harvested from what is now the Mistik FMA, and shipped softwood chips and logs to the Weyerhaeuser pulp mill in Prince Albert, approximately 260 kilometres southeast of Meadow Lake (Mistik EIS 1995). Associated with the original signing of the FMA was a requirement to utilize hardwood resources by 1992. This requirement spurred construction of a pulp mill in Meadow Lake and led to a more equitable distribution of timber harvest between softwood and hardwood species.

3.3 Framework for Analysis

Environmental impact assessment is not explicitly designed as a tool for sector-specific or ecosystem-based resource management. It is primarily an assessment process from which decision-makers can make informed decisions and recommendations about proposed resource development activities prior to project approval (Cashmore 2004). However, in Saskatchewan, it has been applied to long-term FMPs as an added measure to promote the sustainable management of forests (see *FRMA* 1996). And, in recent years, there is growing concern that EIA as a process should contribute to improved environmental outcomes (Noble 2009). Arguably, this is the ultimate goal and measure of its effectiveness.

Measuring the effectiveness of EIA as a tool for SFM required the development and implementation of a framework that combined measures suitable to assess the outcomes of EIA in light of its goals, as well as its contributions to the independent goals of SFM. As a result, four overarching principles and 24 subsequent parameters that define ‘effective’ EIA in the context of SFM were adopted to guide this research. The established principles and subsequent parameters are presented later in this chapter. They were derived from leading national and international standards for forest management in collaboration with ‘generally agreed upon’ objectives and components of best-practice EIA. Arguably, an EIA system or application that meets these principles can be defined as an effective tool for sustainable forest management (SFM).

3.3.1 Sustainable Forest Management Standards

For the purpose of examining the role of EIA in the forest sector, and the extent to which it supports SFM, documents defining objectives of, and criteria for, SFM standards were reviewed. Since SFM entered the Canadian and international policy agenda, many frameworks for regulating and measuring its success have been developed (see Castaneda et al. 2001 for a comprehensive list). Two existing frameworks for SFM were chosen for the purpose of this research: the Forest Stewardship Council (FSC) Principles and Criteria, and the Canadian Council of Forest Ministers (CCFM) Criteria and Indicators. These, in part, form the basis of the analytical framework.

The CCFM Criteria and Indicators Framework were chosen given its Canada-specific approach to defining and measuring SFM progress. This framework is also the chosen set of the Saskatchewan government's State of Saskatchewan Provincial Forests report (2009). The second criteria set, the FSC Principles and Criteria for Forest Stewardship, was chosen based on its international reputation and applicability to various and diverse forest situations worldwide. The FSC standards have also been adopted by Mistik Management Ltd. as part of their voluntary forest certification regime. These two sets of SFM standards were used in the development of a set of principles and parameters to gauge the role of EIA for SFM in Saskatchewan.

In 1985, the CCFM was established to serve as the coordinating body for forest policy and to provide overall direction for SFM planning and practice in Canada (Charron 2005). Measures to determine forest sustainability in Canada were first established by the CCFM in 1995 and updated in 2003. They exist in the form of six criteria and 46 subsequent indicators (CCFM 2003). Factors borrowed from the six CCFM criteria presented below provide oversight to the development of the principle and parameter framework for effective EIA in this research. The CCFM criteria include:

1. Biological diversity;
2. Ecosystem condition and productivity;
3. Soil and water;
4. Role in global ecological cycles;
5. Economic and social benefits; and
6. Society's responsibility.

The Forest Stewardship Council (FSC) is an independent, international certification and labeling system dedicated to sustainable environmental, social and economic management of the

world's forests (FSC Canada 2011). Founded in 1993 by a group of environmentalists, community members, Aboriginals, and industry leaders, the FSC is held to be the highest and most rigorous forest certification standard being implemented to date (James 2011). The FSC Canada establishes its forest management standards at four regional levels (National Boreal Standard, Maritimes Standard, BC Standard, and Great Lakes-St. Lawrence Standard) based on a predetermined set of criteria, called Principles & Criteria (FSC 2004). For the purpose of this thesis, the National Boreal Standard criteria and subsequent regional indicators have been chosen and reviewed to identify the process and procedures necessary to achieve SFM¹. There are three overarching goals that the Boreal Standard strives to achieve, namely: the promotion of “on-the-ground” improvements in forest management practises in the boreal forest; the development of a feasible and widely adopted SFM certification standard; and the promotion of a common understanding of what constitutes “good forestry” in the boreal forest (FSC Canada Working Group 2004: 18). The framework for analysis of this research adopted principles from the following FSC Principles and Criteria for Forest Stewardship (2004):

1. Compliance with Laws and FSC Principles
2. Tenure and Use Rights and Responsibilities
3. Indigenous People's Rights
4. Community Relations and Worker's Rights
5. Benefits from the Forest
6. Environmental Impact
7. Management Plan
8. Monitoring and Assessment
9. High Conservation Value Forests
10. Plantations

3.3.2 EIA 'best practice'

Components of what the leading international authority for EIA, the International Association for Impact Assessment (IAIA), calls 'best practice', as well as extant EIA efficacy literature were reviewed and assessed. It was decided that for the purpose of this study, the

¹ Although there is no provincial initiative located in Saskatchewan, the FSC Canada maintains that standards developed from the FSC's international Principles & Criteria ought to be used in each unique region to identify expectations for forest planning and management and as a measure for SFM (FSC Canada Working Group 2004).

“Principles of Environmental Impact Assessment Best Practice”, developed by the IAIA in cooperation with the Institute of Environmental Assessment (IEA), would form the basis for ‘effective’ EIA in the development of the analytical framework for this research.

The IAIA was first organized in 1980 by researchers, practitioners, and users of impact assessment worldwide. The mission of the IAIA is to “provide the international forum for advancing innovation and communication of best practice in all forms of impact assessment” (IAIA 2012). In 1996, following recommendations from a session of its annual conference, the IAIA declared a need for a global set of principles of ‘best practice’ for EIA. This resulted in a set of 14 ‘basic principles’ and 10 ‘operating principles’ (see Appendix A), designed to promote the “effective practice” of EIA (IAIA and IEA 1999).

The framework for analysis implemented within the context of this study employed the IAIA’s principles of EIA best practice in its development. It acknowledged specifically the following as the fundamental objectives of EIA:

- To ensure that environmental considerations are explicitly addressed and incorporated into the development decision making process;
- To anticipate and avoid, minimize or offset the adverse significant biophysical, social and other relevant effects of development proposals;
- To protect the productivity and capacity of natural systems and the ecological processes which maintain their functions; and
- To promote development that is sustainable and optimizes resource use and management opportunities (IAIA and IEA 1999).

3.3.3 Combining EIA and SFM Standards

To restate, the purpose of this research is to evaluate the efficacy of EIA as a tool for environmental management. Environmental management is the term given to activities that seek to maintain and enhance aspects of the biophysical environment affected by human interaction (see Barrow 1992). The overall goal of EIA in this research is to contribute to better environmental decision-making, so that environmental objectives are reached. Measuring the extent to which EIA has achieved its goal for environmental management in this research, is based on comparing the outcomes of EIA application with its stated goals and objectives. The objectives of EIA in this context have been presented above. In addition to this, in order to be considered an effective tool for environmental management, EIA must not only reach its stated goals, but also those of the environment being managed. In this case, EIA is applied within the

context of Saskatchewan’s forestry sector to 20-year FMPs. Therefore, to be effective, EIA must contribute to better forest management decisions, so that SFM outcomes result. The outcomes of applying EIA to SFM practices (i.e. 20-year FMPs) are evaluated based on the extent to which the goals of both EIA and SFM are reached as a result. These goals, highlighted above, are further detailed in the analytical framework presented below (Table 3.2).

3.3.4 Principles and Parameters for Effective EIA in the Context of SFM

The purpose of this research was to determine whether or to what extent, EIA has been an effective tool for environmental management in Saskatchewan’s forest resource sector. In order to evaluate this, a framework (Table 3.2) combining the above leading SFM standards with EIA ‘best practice’ guidance was established. This framework includes a set of principles and parameters based on national (i.e. CCFM 2003) and international (i.e. IAIA and IEA 1999; and FSC 2004) guidelines and measures applicable and scalable to broader regional as well as site-specific assessment areas. The resulting framework for analysis was applied at the provincial and ‘forest-level’ within the scope of Mistik Management Ltd.’s FMA².

The first principle of the framework (i.e. “EIA institutional and planning framework are conducive to SFM”), captures the fundamental goal of EIA to contribute to better decision-making for environmental management, in this case SFM. Principle 2 (i.e. “Spatial and temporal scale of EIA support SFM practices”), captures the inter- and intra-generational component of sustainability³ that is intrinsically linked to the broader objectives of EIA and SFM. Principle 3 (EIA facilitates maintenance or improvement of forest ecosystem health), and Principle 4 (EIA

² The developed set of principles and parameters used to examine EIA efficacy in the context of SFM cannot be determined or speculated upon using a homogenous method. Many of these parameters are ‘measurable’ objectively, as a yes or no, through document review of EIA law and forest management policy regulation. Others required validation through interviews and were based primarily on stakeholder perception of and experience in the EIA process and forest sector. Likewise, some required cross-validation or supporting evidence from more than a single source of information. The established set of ‘principles and parameters’ were used in this research as a flexible, yet fundamental framework which provided a consistent basis for multi-level analysis.

³ As ambiguous as it is, the concept of sustainability is intrinsically linked to the objectives of both EIA and SFM. For example, sustainable development is an objective of EIA (IAIA and IEA 1999), and the primary objective of forest management (Dunster 1992; Charron 2005). In the development of this framework, the concept of sustainability has been included throughout. More specifically, the three pillars of sustainability (i.e. ecological/biophysical, economic, and socio-cultural), as well as inter-generational (e.g. temporal) and intra-generational (e.g. spatial) components, have been incorporated into principles and their subsequent parameters.

facilitates maintenance or improvement of human well-being) capture the three pillars of sustainability and provide parameters for their assessment.

Table 3.2 Principles and parameters for effective EIA in the context of sustainable forest management

Principle	Parameter
1. EIA institutional and planning framework are conducive to SFM	a. There is a legal requirement to apply EIA to forestry plans and operations
	b. There is a requirement that forest plans and operating permits are routinely renewed/reassessed
	c. EIA is an integrative part of, rather than applied to, forest management planning (i.e. affects FMP development)
	d. EIA serves to integrate information across agencies (e.g. government) to support decision making about forestry proposals
	e. EIA serves to integrate information across disciplines (e.g. natural and social sciences) to support decision making about forestry proposals
	f. Results of the EIA affect implementation of the FMP (e.g. approval, terms, timing, etc.)
	g. Requirement that EIA terms and conditions are implemented in forestry planning/ operations
	h. EIA facilitates coordination of forest planning/ operations with other higher-tiered, horizontal, and lower-tiered sustainability, land use, or forest planning/management actions
	i. Uncertainty is explicit and acknowledged in the EIA and is evident in the resulting FMP (e.g. risk predictions, assessment, significance, etc.)
2. Spatial and temporal scale of EIA support SFM practices	a. EIA of forest plans/ activities considers broader regional and/or global ecological cycles
	b. EIA considers ecological effects beyond the scale of the FMA (e.g. landscape fragmentation effects)
	c. Monitoring and feedback through EIA, post development, informs regional/ ecosystem-based forest management practices
	d. EIA accounts for/accommodates long-term forest land tenure and use rights
	e. EIA considers impacts beyond the life of the forest plan or activity, and ensures that significant adverse effects environmental or socio-economic effects are not displaced onto future generations (e.g. beyond the 20-year FMP cycle)

3. EIA facilitates maintenance or improvement of forest ecosystem health	a. EIA process contributes to more informed decisions about potential forest ecosystem impacts and management solutions
	b. Ecological indicators and thresholds are identified and used in EIA and monitoring practices to support those identified in sustainable forest management.
	c. Potentially adverse environmental effects of forest operations are identified early on, prior to plan implementation, and minimized or eliminated as a result of the EIA
	d. EIA contributes to the maintenance or enhancement of forest ecosystem condition and productivity (resilience and renewal) through prescribed mitigation practices, results-based measures, best management practices, and/or set targets and indicators
4. EIA facilitates maintenance or improvement of human well-being	a. Economic benefits (e.g. yield and quality) from forest goods and services are maintained or enhanced as a result of the EIA
	b. Social and cultural benefits are maintained or enhanced as a result of the EIA
	c. Concerned stakeholders have the rights (legal provisions) to influence forest management outcomes and practices
	d. Concerned stakeholders have the means (e.g. access to information, participant funding program) to influence forest management outcomes and practices
	e. There is evidence that stakeholder input to the EIA process (including traditional knowledge) has been integrated into forest planning activities or operations.
	f. EIA ensures that Aboriginal and treaty rights are acknowledged and supported in forest management practices and operations

3.4 Study Participants

In Saskatchewan, forestry and EIA connect in a relatively integrated and close environment. Traditionally, the EIA process for 20-year FMPs is administered through the Environmental Assessment Branch of Saskatchewan Environment and the FMP process is regulated by the Forest Service Branch (Saskatchewan Government 2010). In order to gain a well-rounded sample of perspectives, participants from government, industry, the non-profit sector, First Nations, as well as the academic community were contacted. This range of participants was identified to represent those involved with administrating, conducting, analyzing, monitoring compliance of, as well as those affected by components and outcomes of EIA and forest management planning. Specific focus was placed on connecting with those

directly related with the development or oversight of the Mistik Management Ltd. 20-year FMP and EIA process.

Participants were primarily identified through the Saskatchewan Government Ministry of Environment website and contact with Mistik Management Ltd. Other participants such as the Meadow Lake Tribal Council were identified by referral from Meadow Lake residents, and by searching original EIA documents (e.g. the 1995 Mistik EIS, public consultation records, FMP volumes). This was useful to identify individuals and groups associated with and/or affected by the EIA and FMP processes. Other participants were contacted following recommendation by initial study participants. Focus was placed on contacting participants involved with the Mistik EIA over those with experience in EIA application to forestry through other FMPs in the province in order to meet time and resource restrictions.

In total, 33 individuals were identified as potential participants for this research and were contacted by email and invited to participate. If no response was received within two weeks of initial contact, potential participants were telephoned. Where an email address was not initially available, potential participants were contacted by telephone and asked to provide an email address to which resources for this research could be sent. At initial contact, or following an introductory voice conversation, an email containing an introduction to the topic of the research, a brief biography of the researcher (e.g. program of study, topic of thesis, contact information), and an invitation to participate in an interview was included. Attached to the email was a brochure, providing a more detailed summary of the research being undertaken. As well, a participant consent form, and a copy of a two-page questionnaire intended for completion prior to an interview was sent along (see Appendix B). Of the 33 potential participants contacted, 19 were available for an interview and willing to participate in this study.

Table 3.3 Study participants by affiliation

Participant Affiliation	Description	Total (n=)
Academic	Researchers and analysts of EIA theory and practice. This group includes university professors, researchers or individuals involved with EIA and/or forest management planning, but not directly in its administration or implementation.	3
Environmental Non-governmental Organizations (ENGOs)	Overseers and reporters of environmental outcomes and EIA practice. This group contains members of the non-profit sector with a vested interest in promoting sustainable environmental practices and ensuring compliance. Members knowledgeable and/or experienced with EIA application in the forest resource sector were targeted for this research.	2
First Nations	Individuals and groups affected by and/or engaged in the EIA process and the development and/or implementation of the FMP. This group welcomed members of Aboriginal and First Nations groups, non-Aboriginal residents of local FMA communities, and all other stakeholders not affiliated with administering, conducting, professionally analyzing or reporting on the EIA or FMP process.	2
Government	Administrators and regulators of provincial and federal acts pertaining to EIA and forestry. This group encompasses government agencies and civil servants guiding, administering, enforcing, and/or making decisions related to legally required EIA and/or regulatory forest management planning.	7
Industry	Consultants and proponents engaged in the procedural undertaking of EIA. This group includes individuals or companies seeking to commence forest activity under the purview of a FMA or other license agreement, or subsequent development, with a legal basis for EIA. It also contains consultants responsible for collecting and analysing data, engaging with the public, and preparing environmental impact statements (EISs) and/or documents related to and required by either the FMP or EIA process.	5

3.5 Data Collection and Framework Application

Data were collected primarily through a review of documents related to the Mistik Management Ltd. 20-year FMP approval, participant responses from a distributed questionnaire, and semi-structured interviews. This information was collected in order to develop a basis of ‘actual experience’ that was later compared to the theoretical goals of EIA as a tool for environmental management. Information was also obtained, to a lesser extent, from researcher observations and engagement with the Mistik FMA area community. This combination of evaluation methods, Conley and Moote suggest, are useful to “identify and test cause-and-effect relationships between project characteristics and outcomes” (2003: 379). The established framework for analysis of this research (i.e. the principles and parameters, Table 3.2), was applied at the forest-level (i.e. within the Mistik FMA). It was used to evaluate EIA’s influence and outcomes in forestry planning and operations. The framework was also developed into a

questionnaire, which was distributed to all study participants and was used to guide each semi-structured interview.

3.5.1 Document Review

A primary source of information was the collection and review of a number of key documents. These related to the Saskatchewan EIA process in general and the Mistik EIA process in particular, including the Saskatchewan *Environmental Assessment Act* (1980) and the *Forest Resources Management Act* (1996). As well, subsequent regulations pursuant to each act (e.g. The Forest Management Planning Manual), which together form the legal basis for EIA application to forest management planning in Saskatchewan, were reviewed. Documents resulting from the application of provincial EIA to Mistik's forest management planning process were obtained and reviewed. This added a better understanding about the connection between the legal and theoretical relationship of EIA to forestry, as well as how it has played out in practice. Specifically, the 1995 environmental impact statement (EIS) for Mistik's 20-year FMP, the original FMP (Mistik FMP 1995), and the Saskatchewan government issued 'project-specific guidelines' for the EIS were reviewed. Following this, resulting reports (e.g. Record of Public Consultation, Economic Impact Analysis) and supporting documents (e.g. Forest Ecosystem and Landscape Management Manual, Resource and Supply Methodology) prepared for the FMP were assessed.

3.5.2 Questionnaire

A questionnaire was developed based on the set of four overarching principles and 24 subsequent parameters presented above (Table 3.2) and distributed to participants via email. The intent of each questionnaire was to gauge stakeholder understandings and expectations for EIA in the context of SFM and planning (Appendix B). The hope was to receive completed questionnaires prior to an interview. In this way interview time could be best used to focus on the principles and parameters that coincide with each participant's specific expertise and/or experience. Not all parameters were intended to be explored with all interviewees. For example, some parameters address specific regulatory provisions and questions about these parameters were asked primarily to regulators. In addition, many of the defining parameters in Table 3.2 were answerable through more objective means (i.e. document review). These did not require

stakeholder validation to evaluate whether or not the parameter was upheld through the EIA process. However, including such objective statements in the questionnaire did provide for a better understanding of how familiar stakeholders were with the EIA process as it relates to forestry in Saskatchewan.

Distribution of the questionnaire took place between August 16th, 2011 and February 1st, 2012, depending on when identification and first contact with each participant took place. Of the 19 participants identified and contacted for this study, nine completed and returned the questionnaire. Five of the respondents were from industry, two were from government, one was from an ENGO, and there was one academic respondent. Neither of two First Nations participants was willing to complete the questionnaire. The response rate of this questionnaire was less than half of the number distributed. The participants were asked to read each principle and rank on a nine point scale the extent to which they agreed or disagreed with the parameter listed under each principle⁴. Participant-ranked responses were followed-up with in an interview. It was hoped that participants would provide an example or give a qualifying statement for why they agreed or disagreed⁵.

Given a response rate of less than half of the questionnaires distributed, and non-comprehensive representation of all affiliate participant groups, it is acknowledged that results from the questionnaire may not provide a true reflection of stakeholder sentiment. As such, questionnaire responses were analysed descriptively by grouping responses to each parameter under three categories and tallying frequencies for each. Participant responses between one and three were categorized as ‘disagree’; between four and six were ‘neutral’; and responses between seven and nine were considered to ‘agree’ with the parameter. Response frequencies for each principle statement were then presented in a table, by parameter, and tallied under the three categories.

⁴ The nine-point scale ranged from ‘strongly disagree’ at point one, to ‘strongly agree’ at point nine.

⁵ Copies of the completed questionnaire (if available) were present at each initial meeting/conversation to refer back to and to further discuss in case of any change in opinion or contradiction in response between the questionnaire and the interview.

3.5.3 *Semi-structured interviews*

Semi-structured interviews were held and participant responses formed the primary source of qualitative data for this research. Essentially, semi-structured interviews are conversations between the interviewer and interviewee that are loosely guided by a predetermined purpose (Valentine 2005). According to Mandarano (2008), evaluating participant's perceptions of improved environmental quality is a good measure of an environmental management effort's success. For this research, interviews were loosely guided by the principles and parameters encased in the questionnaire described above. There was a general procedure for each interview which required that each participant, regardless of affiliation, be asked the following three overarching questions:

1. What is the value added of applying EIA to 20-year FMPs?
2. What are the challenges and constraints to integrating EIA and forest management planning processes?
3. Should EIA be integrated with forest management planning, or should it remain a stand-alone process?

Interviews varied to some extent thereafter depending on each participant's experience with and knowledge of the EIA and FMP process in Saskatchewan. However, the content of each principle and parameter was left open for discussion with each stakeholder. Interview conversations also varied based on whether or not the participant completed the questionnaire prior to the interview. Again, 'strong' agreements or disagreements with the stated parameters were focused on more readily. Where participants either failed to complete the questionnaire prior to interview, or chose not to base their responses solely on the specific content of the principle and parameter framework, the interview proceeded more open-endedly. This conversation-style approach allowed the participant to expand on what he or she perceived effectiveness to be in his or her role in the EIA and/or FMP process. Regardless of whether or not participants discussed the content of the questionnaire explicitly, the interview was refocused to attempt to address at a minimum, those parameters which require primary qualification through an interview and were within the repertoire of the participant being interviewed. Each of the 19 stakeholders participated in an interview. Interviews were held either in person or over the phone and lasted approximately 45 minutes each (Table 3.4).

Table 3.4 Participant interviews by affiliation, method and date

Participant Affiliation	Interview Method	Date of Interview
Industry (Mistik Management Ltd.)	In person	August 16, 2011
Industry (Mistik Management Ltd.)	In person	August 16, 2011
Government (Meadow Lake Area Forester)	In person	August 18, 2011
First Nations (Meadow Lake Tribal Council)	In person	August 18, 2011
Industry (Sakaw-Askiy Management Inc.)	In person	September 8, 2011
Government (Forest Service Branch)	In person	September 8, 2011
Government (Forest Service Branch)	In person	September 9, 2011
Government (Prairie Geomatics Section)	In person	September 16, 2011
Government (EA Branch)	In person	September 16, 2011
ENGO (Ducks Unlimited Canada)	In person	October 20, 2011
ENGO (Saskatchewan Environmental Society)	In person	October 24, 2011
Industry (Weyerhaeuser)	Over telephone	November 2, 2011
Academic (U of S Law)	In person	November 9, 2011
Academic (U of S Soil Science)	In person	November 17, 2011
Government (CEAA)	Over telephone	November 21, 2011
Academic (U of S Geography)	In person	November 22, 2011
Industry (EIA Consultant)	Over telephone	November 24, 2011
Government (Energy and Resources)	In person	January 10, 2012
First Nations (Resident)	Over telephone	February 2, 2012

Interviews done both in person and over the telephone were recorded using a Livescribe™ Smart pen, which records audio as the researcher takes notes manually and links the voice recording with what is written at that time and can later be uploaded to desktop software (Livescribe Desktop™) for review. This was a useful method because audio can be slowed, paused, or skipped to an earlier or later point in the interview by selecting text in the desktop notes. Interviews were transcribed directly following the interview using the audio playback feature of this software and recorded in a word document for further analysis.

Once interviews were concluded and transcribed, NVivo® Software was used to analyze the responses. This was done by setting up ‘nodes’ on the interface using the three overarching questions, as well as the principles and subsequent parameters as categories, or ‘node’ headings. Then, each interview was reviewed as a document and relevant information for each parameter and question was selected and ‘coded’ in its respective ‘node’. Once this was completed each ‘node’ was analyzed for common response trends and themes. Preliminary results were recorded in another word document titled by question or parameter and filed on a secure computer desktop by principle. The resulting word files, containing principle and parameter information, were later added to from the results of document analysis. This was a basic, but effective, way to compile information for each parameter, especially where some required objective validation through document review and qualifying evidence from stakeholder interviews.

3.5.4 Engagement with the Community

Finally, engagement with the community in and around the Mistik FMA facilitated first-hand knowledge and experience with on-the-ground forestry operations. As well, local and Aboriginal connections to Mistik's FMA area were observed and served as an informal measure of public sentiment with EIA as it relates to the Mistik FMP. This was achieved primarily through participant observation. Participant observation involves researcher engagement with participants through social interactions between the researcher and the subject (Black 1983). Data collection from personal documents and unstructured interviews (Bogdan and Taylor 1975) characterize this method as well. Generally, this method was undertaken for the purpose of gaining insight to a range of divergent stakeholder perceptions within a specific context (Black 1983; Bauer 1984). For the purpose and objectives of this study, participant observation occurred primarily through informal engagement with the community in and around the Mistik FMA, including:

- attending Mistik Management Ltd.'s annual Public Advisory Group meeting and Field Tour;
- exploring the biophysical environment of Mistik's FMA by spending time 'in the bush' with the Meadow Lake Area Forester; and,
- participating in a traditional Aboriginal 'sweat' at a MLTC member First Nation treatment centre.

On-the-ground engagement with and observation of participants broadened the context of this study. Specifically it familiarised the researcher with customs, local knowledge within the FMA, and put into perspective the way in which certain stakeholders view and make use of forest resources in the community.

CHAPTER 4

RESULTS

This chapter presents stakeholder understandings and expectations of the role of EIA in 20-year forest management planning in Saskatchewan. Based on an analysis of questionnaire responses, document reviews, and information gathered from semi-structured interviews, findings are presented to coincide with the principle and parameter framework design. Results are detailed under each of the headings of the four principles. Participant perspectives on the value added of applying EIA to forest management planning are then presented. Following this, views on integrating effective EIA with sustainable forest management planning processes are presented. The opportunities and challenges associated with such integration are given based on responses obtained in semi-structured interviews. Finally, a table synthesizing these results is provided.

4.1 Principle 1: EIA institutional and planning framework is conducive to SFM practices

Based on questionnaire responses, participants for the most part agreed that EIA's institutional and planning framework is conducive to SFM practices (Table 4.1). Responses from both questionnaires and interviews aligned with results of document reviews. Results upheld parameters 'a' and 'b', that there is a legal basis to apply EIA to forestry plans and operations in Saskatchewan. Along with this requirement, there are provisions for routine renewal and in some cases, reassessment, of FMPs. For example, pursuant to section 34(2) of the Saskatchewan *Forest Resources Management Act* (FRMA 1996), every FMA holder must submit an updated 20-year FMP for review and renewal every 10-years. Also required to be submitted annually for review and approval are five-year annual operating plans (AOPs) under section 38 of the FRMA. Renewed FMPs go through a two-year review and approval process and generally do not require reassessment under the *EA Act*. An exception occurs if changes made to the approved operating or forest management plan conflict with the terms or conditions set out in the approved 20-year FMP. This is considered a 'Change in Development' and warrants reassessment under section 16 of the Saskatchewan *EA Act*.

Table 4.1 Frequency of questionnaire responses¹ by category of agreement for parameters assessed under Principle 1

EIA institutional and planning framework are conducive to SFM:	Category of responses		
	Disagree (1-3)	Neutral (4-6)	Agree (7-9)
a. There is a legal requirement to apply EIA to forestry plans and operations	1	2	6
b. There is a requirement that forest plans and operating permits are routinely renewed/reassessed	0	0	9
c. EIA is an integrative part of, rather than applied to, forest management planning (i.e. affects FMP development)	3	0	6
d. EIA serves to integrate information across agencies (e.g. government) to support decision making about forestry proposals	3	4	2
e. EIA serves to integrate information across disciplines (e.g. natural and social sciences) to support decision making about forestry proposals	3	3	3
f. Results of the EIA affect implementation of the FMP (e.g. approval, terms, timing, etc.)	3	2	4
g. Requirement that EIA terms and conditions are implemented in forestry planning/ operations	3	2	4
h. EIA facilitates coordination of forest planning/ operations with other higher-tiered, horizontal, and lower-tiered sustainability, land use, or forest planning/management actions	4	2	3
i. Uncertainty is explicit and acknowledged in the EIA and is evident in the resulting FMP (e.g. risk predictions, assessment, significance, etc.)	6	2	1
Frequency count, total	26	17	38

¹n=9

Participants largely agreed with parameter ‘c’, that EIA is well integrated into the forest management planning process in Saskatchewan. However responses to parameters ‘f’ and ‘g’, were more split as to whether EIA affects approval, terms and timing of the FMP, and results of the EIA are implemented in the resulting plan. Participants considered EIA as it applies to forestry in Saskatchewan to exemplify a unique and close relationship between two government agencies that has facilitated a higher-level integration and application of two distinct regulatory processes. This was the general view of government participants, for example one noted:

Both agencies are within one ministry and it’s small so it’s well integrated here. That’s one of the benefits here that you can get all decision makers around a table and share this information.

Another government participant agreed, stating:

In Saskatchewan we have two separate processes that we’ve tried to integrate as much as possible. We’ve worked quite closely with the assessment folks in terms of what we’re emphasizing in the FMP planning process and what they’re going

to emphasis and make sure that between the two processes that we've got all bases covered.

Where there was disagreement that EIA is well integrated with the FMP process, participants typically were either 'neutral' or in slighter disagreement with parameter 'd'. Some interview participants indicated that government agencies failed to communicate and share EIA information effectively in general and did not specifically refer to EIA as it relates to forest management planning in Saskatchewan. For example, one participant from industry noted:

I haven't seen a government agency that actually wants to integrate and inform because they're all out in their own worlds and the biggest problem is government agencies won't talk to each other.

An academic participant expressed similar frustration stating:

...they're not as good as they used to be, there is difficulty. When the proposal comes in they circulate it among departments and there's frustration among those who contribute their suggestions to have them disappear through the cracks.

There was, however, one exception. A participant from industry with EIA experience specifically related to FMPs in Saskatchewan disagreed with the general response from EIA and FMP administrators, indicating that the two processes are well integrated. But the participant also noted:

[a]nother big problem is the silos that government is set up in, you have a branch that looks after forestry and a branch that looks after mining and they're not integrated so it's hard to integrate what goes on on the landscape too.

In terms of EIA's effect on FMP approval, terms and timing it was generally agreed that EIA did affect the outcome of the FMP in these regards. Although many participants from industry expressed dissent with EIA's application to FMPs, calling it a procedural duplication and an "unnecessary hurdle" that was ineffective in terms of time and cost. For example, one industry participant stated:

There is no benefit to spending dough on redundant plans. My problem is doing two plans and the other is do we need to do it when we're dealing with an applied science?

However, pursuant to provincial forest management planning requirements, as detailed in the Saskatchewan *FRMA*, an EIA must be approved prior to FMP implementation, and as one

participant from industry affirmed in response to parameter 'g', "[i]n generic ways" EIA terms and conditions are implemented in forestry planning and operations.

Participants were overall unsure to what extent EIA served to integrate information across disciplines to support decision making about forestry proposals (parameter 'e'). This was evident in questionnaire responses, which were evenly split between 'disagree', 'neutral' and 'agree'. For example, an academic participant stated that EIA is "[n]ot that good at it... decisions are less data based and more political." An ENGO participant was also skeptical that interdisciplinary information sharing occurred as a result of EIA and expressed:

I think that's what it's meant to do, but I don't agree that it's necessarily done that because what we see often is environmental sciences are often overrun by places where there are other interests like mines or agriculture.

Likewise, another ENGO participant was uncertain that EIA achieved this outcome but gave an example in which it was perceived that information was effectively integrated across disciplines. The participant noted an experience from a provincial forest land use planning committee that "brought in speakers from all disciplines... wetland impacts [were] considered from a cost and environmental perspective." Others, particularly from government, generally agreed with this parameter with one stating, "I can't say the forest service has sociologists on staff but we do listen and pass on to politicians and the community, what First Nations and ENGOs think." However, uncertainty was still prevalent, as another government participant noted, "I think it does, but I don't know if it linked them as well then as people would like it to be done today."

Disagreement with parameters 'h' and 'i' was largely expressed by participants in both questionnaire and interview responses. Most felt that EIA does not facilitate coordination with other forest planning and management actions that occur on the landscape. Any higher-tiered or horizontal sustainability or land use planning, as one government participant noted, is "done completely separate from forest planning and operations." Others agreed; for example, an industry participant indicated that decisions made by the Lands Branch of the Saskatchewan Ministry of Environment on land uses within provincial FMAs were made and "forestry is informed after the fact." Sentiment that EIA fails to link up forest management planning/operations with other land use processes was widespread amongst participants. As one participant from academia indicated, "It's not happening and I don't know if it's by neglect or by design." In addition to this, several made reference to a lack of consideration for cumulative

effects and strategic assessment in the EIA process as a potential cause for its failure to facilitate this coordination. As one ENGO participant illustrated:

There is oil and gas exploration and development in Mistik's FMA, but exploration doesn't count as a development so it isn't regulated at all really... I think that's an excellent example of the fact that EIA isn't covering [enough], even though the forests are being well managed, there's these other things that are not and are impacting the forest management and protection.

Another academic participant expressed frustration with the lack of strategically coordinated EIA and use planning in the forestry sector, explaining:

We've seen how bad it can go with Alberta and we're ignoring that... it's amazing that we wait for the individual project before we decide what to do... land use planning at a minimum should look at cumulative impacts and raise the level of strategic impact assessment... While we have the luxury of time, why aren't we doing strategic environmental assessment?

The majority of participants also felt that uncertainty was not well accounted for in the EIA and the resulting FMP. Disagreement far outweighed agreement in questionnaire responses to parameter 'i'. Results from document reviews of Mistik's EIS and FMP indicated that uncertainty was acknowledged in an ecological, as well as public and private economic risk assessment. This was included in the EIS and 'flexibility' was incorporated into the planning structure of the resulting FMP. However, the extent to which uncertainty was explicit and evident in both processes was largely contested by participants. For example, industry stakeholders tended to attribute far less to the EIA than the FMP in this regard. One participant put it this way:

...if you submitted an EIA with a whole bunch of uncertainty you would probably be rejected. The government doesn't want uncertainty. How do you deal with it? In the FMP... the beauty with the FMP is it's redone every 10 years and hopefully there's less and less uncertainty because we're gaining more knowledge and data.

Another industry participant claimed that not in the EIA, but "in [the forest] company's financial statement, it elaborates on risks and uncertainty elements". In another example, an industry participant stated that although "[t]hey talked about uncertainty in the EIA," when the decision is made, results of the EIA do not solely inform development and implementation of the FMP. As an example this industry participant stated:

...you do all of this work and come up with a really fine-tuned number of what

you think wood supply levels should be, what are sustainable levels of harvest, then the political process starts at the government level...and the wood supply you end up with is a negotiated thing. Sometimes they don't want less because it shoots down jobs...and it shoots your good science in the foot.

4.2 Principle 2: Spatial and temporal scale of EIA supports SFM practices

Based on questionnaire responses, participants were relatively split between those who 'agreed' and those who 'disagreed' with the parameters under Principle 2 (Table 4.2). However, responses from interviews indicated that the scope and scale of EIA was adequate to support SFM practices within the FMA area, but that it did not adequately consider broader ecological cycles or effects beyond the scale of the FMA, as required by parameters 'a' and 'b'. For example, one ENGO participant stated that the EIA was "not broad based, it's specific, that's all they can manage." Another participant from industry expressed a similar view that "it looked specifically at the FMA boundaries; there was no linking of adjacent areas really." Results from document reviews generally supported this view. According to the EIS for Mistik Management's 20-year FMP, only "forest-level impacts", or the potential ecological effects occurring within the FMA area, were assessed (Mistik EIS 1995, Ch.2, pg.6).

Table 4.2 Frequency of questionnaire responses¹ by category of agreement for parameters assessed under Principle 2

Spatial and temporal scale of EIA support SFM practices:	Category of responses		
	Disagree (1-3)	Neutral (4-6)	Agree (7-9)
a. EIA of forest plans/ activities considers broader regional and/or global ecological cycles	3	2	4
b. EIA considers ecological effects beyond the scale of the FMA (e.g. landscape fragmentation effects)	3	2	4
c. Monitoring and feedback through EIA, post development, informs regional/ ecosystem-based forest management practices	4	2	3
d. EIA accounts for/accommodates long-term forest land tenure and use rights	4	1	4
e. EIA considers impacts beyond the life of the forest plan or activity, and ensures that significant adverse effects environmental or socio-economic effects are not displaced onto future generations (e.g. beyond the 20-year FMP cycle) ²	4	0	3
Frequency count, total	18	7	18

¹n=9

²One questionnaire participant did not respond to this parameter.

Participants were hesitant to give credit to EIA for existing monitoring and feedback programs (parameter 'c') and long-term forest tenure and use rights (parameter 'd'). Feedback from interview participants generally indicated that post-development monitoring, when followed-up with, was weak and both long-term tenure and any extant monitoring programs were administered and enforced beyond the scope of EIA. Monitoring and feedback through EIA, although acknowledged as a recommendation in the EIS (see Mistik EIS 1995: iii), was largely perceived as being small-scale and not meaningful on a broader ecological level. For example, one ENGO participant noted that:

...in my experience, the forester does most of the monitoring and reports back and it's only on the odd occasion where the provincial government on a seasonal or complaint basis will check-up. It's all on small and specific points of where they might be straying off their management plan, so it might be a tub of oil has been left out and not reclaimed.

Another participant from government agreed with this view and stated that "the staff is small, so we rely on forest officers that are out there." In terms of the capacity of EIA to inform future forest management practices based on results of monitoring and feedback, participants generally agreed with one government participant's response that, "there's little feedback in the EIA process." Another ENGO participant added to this, asking, "...how can any committee or individual take a huge EIA document that has taken teams of people to create and have meaningful feedback put into that process?" One First Nations participant also agreed that monitoring was not done effectively through the EIA, and because of this "they don't realize how easy they can fall off the last EIS."

Despite a general perception expressed among participants that provisions for monitoring and feedback through EIA were insufficient, it was accounted for in the Mistik EIS. For example, in the document, Mistik proposed a "coordinated and integrated environmental monitoring and research program to measure and improve the effectiveness of forest management" (1995: ii). However, it was generally found that when post-development monitoring and feedback were occurring it was "not through EIA but through the [voluntary forest] certification process" (industry participant). Another industry participant said "you couldn't be farther from the truth!" when asked if monitoring through EIA informed forest management practices. It was added, "they're using other vehicles to deal with all this stuff"... "...if you replace ['EIA'] with the 'FMP' or 'Annual Report' in this [statement], bang on!"

Monitoring processes existing outside of EIA were acknowledged by others, and one government participant explained that in light of this, “we don’t want to duplicate processes.”

Relevant to parameter ‘d’, forest tenure and use rights are issued pursuant to the Saskatchewan *Forest Resources Management Act* and the resulting FMA signed between the forest company and the Province. On this, one government participant stated, “the land tenure is through the FMA, which is different from the EIA and the FMP; it’s that license that gives [the forest company] the right to use that provincial resource”. Although it was acknowledged that EIA “accommodates long term tenure for the companies operating within the FMA” (ENGO participant), some participants expressed concern with the ability of EIA to accommodate First Nations land use rights. One ENGO participant noted that EIA “doesn’t have the flexibility to change with use rights around First Nations.” This view was supported by another participant from academia who stated, “for First Nations rights, EIA is problematic...the ‘duty to consult’⁶ is not enough.”

Specific to the Mistik case, there were two exceptions relevant to parameters ‘b’ and ‘e’, which did uphold to some extent that EIA does support SFM practices. In response to parameter ‘b’, one government participant commented on potential cumulative effects of development in and around the proposed project area. The participant acknowledged that “this is the most difficult... especially without info on other projects acting cumulatively with the new project”, but stated that this is “an area that is front and center within the EIA.” Another government participant supported this and noted that in the Mistik case, although “the focus is on the land they control... if they know there’s a lot of development around the FMA area they will modify what they do somewhat and manage around there.” The second exception relates to the temporal scale of the EIA, which pursuant to parameter ‘e’ must consider impacts beyond the life of the FMP. Based on a review of Mistik’s 1995 EIS, it was found that alternative scenarios for forest management activities and their potential impacts on the forest ecosystem within the FMA were modelled over a 220 year time scale (see pg.i and Ch.4-7). An academic participant commented broadly on the scope and scale of EIA in the context of forest management planning and operations in Saskatchewan and noted:

⁶ The ‘duty to consult’ is an acknowledgement of Aboriginal and Treaty Rights resulting from the *Constitution Act 1982*. The Government of Saskatchewan “will consult with and accommodate, as appropriate, First Nations and rights-bearing Metis communities in advance of decisions or actions which may adversely impact Treaty and Aboriginal rights” (First Nation and Metis Consultation Policy Framework, Government of Saskatchewan 2010).

...amongst all other land users in the area, the forest industry has to be able to plug in and not be negatively affected by the other users and not negatively affect the other users, and they need to be actually doing things sustainably and a 20-year FMP isn't enough, they need the EIA to make it fit in.

4.3 Principle 3: EIA facilitates maintenance or improvement of forest ecosystem health

In a report on the 2009 *State of Saskatchewan's Provincial Forests*, harvest sites that were once backlogged (i.e. unproductive, or of poor quality due to natural hazards and other factors) are now successfully regenerated and “forests are being maintained in a healthy state”. Based on questionnaire responses for Principle 3 (Table 4.3), participants moderately ‘agreed’ that EIA resulted in outcomes of maintained or enhanced forest ecosystem health. A major conclusion of the Mistik EIS was that “environmental improvements to forest management will occur as the Forest Management Plan is carried out over the next 20 years” (1995: ii). However, responses gathered during interviews showed divergent views on the extent to which this has occurred. Participants from government, and to a lesser extent academia and ENGOs, acknowledged EIA as an important contributing factor to maintain or enhance SFM outcomes. The majority of participants from industry and First Nations reported that a better managed forest ecosystem resulted from processes and practices either beyond, or outside of the scope of EIA, and a link between EIA and the FMP was often overlooked or undermined.

Table 4.3 Frequency of questionnaire responses¹ by category of agreement for parameters assessed under Principle 3

EIA facilitates maintenance or improvement of forest ecosystem health:	Category of responses		
	Disagree (1-3)	Neutral (4-6)	Agree (7-9)
a. EIA process contributes to more informed decisions about potential forest ecosystem impacts and management solutions	3	2	4
b. Ecological indicators and thresholds are identified and used in EIA and monitoring practices to support those identified in sustainable forest management.	3	2	4
c. Potentially adverse environmental effects of forest operations are identified early on, prior to plan implementation, and minimized or eliminated as a result of the EIA	3	3	3
d. EIA contributes to the maintenance or enhancement of forest ecosystem condition and productivity (resilience and renewal) through prescribed mitigation practices, results-based measures, best management practices, and/or set targets and indicators	3	2	4
Frequency count, total	12	9	15

¹n=9

In response to parameters ‘*b*’ and ‘*d*’, interview participants largely reported that some form of ecological indicators and thresholds were used for planning and monitoring forest management practices. This was evident in the Mistik EIS, which acknowledged the use of positive and negative environmental impact thresholds/levels. Yet, in contribution to forest ecosystem condition and productivity, most suggested that actions prescribed through EIA were weak or negligible in the presence of other regulatory and voluntary forest management tools. This was the general view of interview participants from industry, First Nations and ENGOs. For example, one industry participant stated that monitoring and maintaining thresholds are done through practices detailed in other forest management practices and suggested, “...you replace ‘EIA’ with ‘FMP and Annual Report’ and you have a really powerful statement.” This view was supported by a review of the Mistik EIS, which stated that indicators for minimum positive environmental impact level maintenance were identified in the FMP. As well, maximum negative environmental impact levels were identified in the Forest Ecosystems and Landscape Management Manual, but thresholds were not detailed in the EIS.

The Mistik EIS also stated that the FMP “sets out in detail the annual monitoring program to be implemented” (1995; Ch.9-10). However, in practice, as reported by a government interview participant in response to parameter ‘*c*’, monitoring practices in general, and indicators and thresholds in particular, “are a little weak.” For the purposes of monitoring, an industry

participant suggested that the requirements of voluntary standards were more effective than those of the EIA and stated:

Voluntary certification schemes have leaped ahead of federal and provincial regulatory processes. Everyone wants the FSC logo because that's the gold standard, and who cares about the EIA?

Overall participant responses upheld this view, that EIA had less to do with enhanced forest ecosystem outcomes than other processes and practices occurring in the FMA. One ENGO participant expressed, “the three-tiered [forest management] process is much more involved than the EIA process...” yet, “there's still gaps that are constant problems.”

According to others, actions undertaken through EIA have not contributed enough to maintaining and enhancing forest ecosystems. One First Nations participant noted “there's a lot of corners being cut.” This was supported by an ENGO participant, who noted,

There was a minimal amount of projects rejected as a result of EIA, all mostly went ahead maybe with only some minor mitigation strategies. One could say that the programs were so well designed that there wouldn't be any impacts; I think perhaps some of us who are more cynical might say that it's really not doing enough. There's other factors coming into play that prevent a project that's so far along from being stopped or hindered significantly so we kind of just tinker around the edges rather than changing something substantively because there's so much momentum behind it.

It was noted by a First Nations participant that since EIA has been applied to forestry in Saskatchewan, “[t]here are a lot of improvements in the 20-year management plans”. However, this participant also stated, “... there are certain species at risk and certain species of plants and vegetation that are rare that they don't take into consideration.” First Nations participants expressed that the current EIA system was inadequate to properly address concerns over forest values in the FMA. It was regularly suggested that in order to better maintain or improve forest ecosystem health, traditional knowledge from local people living off the land must be better integrated into management decisions, “...you have to feel the anger and frustration of grassroots people” (First Nations).

According to another First Nations participant, prior to Mistik's EIA, several community-based co-management boards had been established to address concerns with large clear cuts. This participant remembered extensive “cutting on traditional territories in the South” and said that it was “impacting our livelihoods and our traditional ways.” This participant suggested that

improved ecosystem health is best achieved through direct and open communication with traditional land users, “we’re working on more capacity in the forestry area, we have a co-management board and we’re being accountable to ourselves.”

Many participants indicated that if SFM outcomes were reached, it was due to the diligence of other processes and to a lesser extent the result of EIA. However, in response to parameters ‘a’ and ‘c’, participants, particularly from government and academia, stated that EIA has contributed to more informed decisions and identified impacts early in the FMP process. For example, one academic participant suggested that EIA is important in the consideration of alternatives “to a project, not just within a project” and in this case that it “would open the doors to considering... whether or not turning the Boreal forest into pulp was a good use of resources...” Another participant from government noted that “the adverse effects drive the [EIA] early on because they start the development of the [FMP] and you develop up your management practices to address those impacts.” Others agreed that through EIA, effects to certain aspects of the landscape that would not have necessarily been captured in the FMP were considered and informed the management practices developed in the FMP. As one participant from government responded, “In my view, part of the way it did that was by increasing the distribution of information farther than a FMP normally would.” Another example given by an ENGO participant identified that “the roads and landings issue had to be dealt with by companies in the [cut] blocks. It came out of the EIA.” A government participant agreed and added: “...maybe the roads one... [the EIA] put on conditions that weren’t in the FMP, [roads were] a common goal but unique to the assessment approval.”

4.4 Principle 4: EIA facilitates maintenance or improvement of human well-being

In the EIA done for Mistik Management Ltd.’s 20-year FMP, the preferred alternative chosen for forest management included provisions that appear to show support for improved human well-being. For example, a valuable and fairly distributed stream of economic benefits to local communities, opportunities for ongoing public consultation, and long-term maintenance of traditional land use and ecological integrity were cited objectives of the EIA (Mistik EIS 1995: ii-iii). However, based on results from questionnaire and interview responses, major conclusions of the EIA have not been upheld in practice. Questionnaire responses show that participants largely ‘disagreed’ that EIA facilitated maintenance or improvement of human well-being in the

Mistik case (Table 4.4). Specifically, questionnaire respondents indicated that EIA fell short on enhancing economic benefits (parameter ‘a’), providing stakeholders with rights and means to influence forestry decisions (parameters ‘c’ and ‘d’), and ensuring that Aboriginal and treaty rights were acknowledged and supported (parameter ‘f’). Yet, responses to parameter ‘e’ indicated that participants felt that stakeholder input to the EIA process has influenced FMP outcomes. Questionnaire responses to parameter ‘b’ were evenly distributed between those who ‘agreed’, ‘disagreed’, and were ‘neutral’, regarding the extent to which EIA maintained or enhanced social and cultural benefits.

Table 4.4 Frequency of questionnaire responses¹ by category of agreement for parameters assessed under Principle 4

EIA facilitates maintenance or improvement of human well-being:	Category of responses		
	Disagree (1-3)	Neutral (4-6)	Agree (7-9)
a. Economic benefits (e.g. yield and quality) of forest goods and services are maintained or enhanced as a result of the EIA	3	4	2
b. Social and cultural benefits are maintained or enhanced as a result of the EIA	3	3	3
c. Concerned stakeholders have the rights (legal provisions) to influence forest management outcomes and practices	5	0	4
d. Concerned stakeholders have the means (e.g. access to information, participant funding program) to influence forest management outcomes and practices	5	0	4
e. There is evidence that stakeholder input to the EIA process (including traditional knowledge) has been integrated into forest planning activities or operations.	3	2	4
f. EIA ensures that Aboriginal and treaty rights are acknowledged and supported in forest management practices and operations	4	3	2
Frequency count, total	25	12	19

¹n=9

Results from interviews told a slightly different story. Largely, participants indicated that economic benefits stemming from Mistik, along with a high level of community engagement, have contributed to an overall sense of maintained and in some ways, improved, human well-being. However, when asked to what extent EIA had contributed to these outcomes, participants tended to dismiss the role of EIA in favour of such things as long-standing corporate integrity, the FMP, and high standards for voluntary forest certification. According to most participants,

maintaining a valuable stream of economic benefits from forestry had little to do with the EIA. For example, one industry participant stated:

The EIA may throw some economic value numbers from the output of the FMP, for example: you do this you're gonna get 'x' more jobs, you do this you're gonna get two-times more jobs, but the FMP is the tool you use to either keep yield, maintain yield, etc...

A participant from government supported the industry response and noted: "I think it's maintained and enhanced through the FMP." One participant from First Nations agreed that economic benefits have streamed into the local communities, but as a result of corporate and community initiatives and partnerships. This participant recalled an example:

In 1985, the Meadow Lake Tribal Council... and the nine member First Nations wanted to get into the forest industry and they purchased into the NorSask Mill at 40%. At that time, the concept was to train forest technicians and get them to work for our company and some are still working there... the idea from our leaders was to develop as many of our First Nations people to take in as many forestry jobs as they could.

This was also supported by a participant from industry who stated that benefit flows between forest companies and local/Aboriginal communities occurs "somewhat through treaties, somewhat through ongoing negotiations, agreements, MOUs⁷, goodwill... the FMP process", but did not credit any of this to the EIA.

In addition, interview participants largely expressed that 'rights' (parameter 'c') and 'means' (parameter 'd') to influence forestry decisions were not effected through EIA. Pursuant to Section 10 of the Saskatchewan *EA Act*, the Minister must give public notice of assessment and may direct a development proponent to hold an information meeting prior to making a decision (Section 13 (a) and (b) Saskatchewan *EA Act* 1980). The Mistik EIS stated that ongoing public consultation will occur through local co-management boards and forest advisory committees to apply "provisions of the Forest Management Plan to local circumstances" (1995: iii). According to participant interviews, meaningfully engaging concerned stakeholders through rights established by the EIA process (parameter 'c') have been largely ineffective. For example, one academic participant stated, "in terms of First Nations and Metis Relations, [governments] assume that EIA can take the place of duty to consult and that's not enough." Another ENGO

⁷ Memorandums of Understanding

participant agreed that the EIA “doesn’t have the flexibility to change around First Nations use rights... when it comes to process and incorporating public consultation, they’re not set up to do that effectively.” One participant from First Nations gave an example of this:

...what traditionally happens is someone from Saskatchewan Environment will send a minimal notice to the chief: here’s what company X is proposing to do on your lands and here’s your notice, you have 30 days to respond. What happens is if the chiefs are busy travelling sometimes when they get back home there’s no time to react. There’s flaws with that system, what we want is a new system.

Participants from industry also expressed that incorporating concerned stakeholder views into FMPs is done through means other than the EIA process. One industry participant noted, “if you look at our FMP process, [there are] bucket loads of stakeholder involvement, engagement of the Aboriginal groups as well.” A participant from government supported this response and gave the following example:

Mistik out of their FMP has public stakeholder groups, they meet annually with their public advisory groups, they do field tours, and they meet regularly with different advisory groups from different parts of the license...it’s not just Mistik’s structure, it’s also the people at the helm who love it, breathe it, and make it happen.

As an exception, other participants from government upheld the administrative role of EIA in the consultation process. As one participant noted: “stakeholders have the provision to comment...EIA is distributed everywhere, where the FMP is more in the area so there’s more regionalization for EIA.” Another government participant supported this and stated that concerned stakeholders “have the ability to influence for sure.”

Where interview participants indicated that there were effective means to implement stakeholder concerns (parameter ‘*d*’), and stakeholder input was integrated into forestry plans (parameter ‘*e*’), it was said to have resulted from the development and regular meetings of co-management boards and public advisory committees. As one ENGO participant noted, “forestry falls under a provincial mandate and I’ve never seen any provincial funding for EIA in forest management...we certainly would have applied for it.” However, funding for participants to influence forestry decisions has occurred, as one First Nations participant recalled:

In 1992 forestry was picking up and the communities said ‘whoa, you guys are harvesting too much for us, you’re impacting our livelihoods and our traditional ways’ and there was a blockade... the co-management board resulted and it would be the sound board for Mistik to go to before they harvest... the company invested

in the board and there's money set aside so they can function and work.

In addition, a participant from government acknowledged the positive effect of co-management to incorporate stakeholder views into the FMPs and noted:

These plans are developed with the local communities so the most locally impacted are part of the development of the plan because they sit on the board. It's a group of people around a table having a discussion about where they want the plan to go.

However, as another government participant reported, "a stakeholder could be a person who values the land just for wilderness and says 'I do not want any cutting in this forest whatsoever... he probably can't action that concern, he has the right to voice it, but it's unlikely.'"

In terms of EIA ensuring that Aboriginal and treaty rights are acknowledged and supported in forestry plans and operations (parameter 'f'), a significant number of participants provided responses indicating that this was weak. As one ENGO participant responded:

It's designed to be inclusive but the reality is that there's no way to get meaningful consultation in and my experience with not only Mistik but others is that people still don't feel like they're being heard... I hear all the time from different communities that their treaty rights aren't being acknowledged.

However, another participant from government responded that, "in my duty to consult and in my perception, their treaty rights are supported in forest management." However, this participant also noted that, "to their perspective, they're not," for example:

...they say 'I can't hunt'... the nature of landscape disturbance is that you may have a large area that is impacted by logging but you have an equally large area that isn't... You drive down the road you have your gun, there is nothing stopping you from hunting. When I talk to First Nations groups they don't want an experience like that they want a traditional experience.

The belief that EIA has failed to ensure Aboriginal rights to a traditional use of the forest was supported by a First Nations participant who responded, "unfortunately the license requests that First Nations people have are being ignored." Despite the slight overall indication from questionnaire responses that EIA has maintained or enhanced social and cultural benefits, participant responses from interviews showed results that this has largely not occurred.

According to one ENGO participant, different and evolving values among local communities in

the Mistik FMA have contributed to unclear notions of what EIA is expected to achieve. For example, this participant noted:

I think we're running into problems with meeting the northern needs... cultures are changing with the times... you get northern communities saying we have a traditional lifestyle that we'd like to maintain and we can't do that if you're cutting and yet at the same time we have the Tribal Council saying that we want this industry because we want people to have jobs, we want people to have trucks and big screen TVs... so there's the cultural conflicts that are happening within northern communities generally and it's not just First Nations...

This response was supported by a First Nations participant who stated:

...we don't want the jobs that give us the shovel, we want to be sitting at the board level and making decisions and we'll create economic opportunities...for example, in the woodlands area the forestry people developed trucking, we had individuals from each community trained and eventually the individuals became owners of the trucks.

4.5 Value added by applying EIA to 20-year Forest Management Plans

During interviews, all participants were asked their views on what EIA added to the 20-year FMP process in Saskatchewan. Responses were varied. Eleven (58 percent) participants stated that value was added, while eight (42 percent) replied that no value was added. Overall, the majority of participants from government, ENGOs and academia perceived EIA to be a necessary component to ensuring SFM outcomes are achieved. In contrast, most participants from industry and First Nations felt that the EIA process was an unnecessary addition to the FMP process and contributed little, if anything, to better forest management.

A common response amongst participants, who stated that EIA did add value, was, as one government participant stated, EIA is a necessary “first step in making sure sustainable forest management is planned for.” Another government participant added:

EIA in general is used to inform decision making, so going through an EIA process for any kind of project including forest management projects involves taking into account the environmental implications right at the beginning.

Participants generally agreed that EIA adds consideration of entire ecosystems and goes beyond that which is considered in a FMP. One participant from academia responded, “We have a better idea of what we have in our forests now and that's been a good thing... it's likely highlighted a

number of the issues in the forest management.” Another academic agreed, noting: “I think properly applied it can add a lot because things as focused as 20-year FMPs and how timber is harvested in a FMA are pretty narrow.”

More specifically, participants noted that EIA covers several aspects of planning that may not be considered, or are outside the reach of the FMP and other forest management processes. For example, a government participant noted that the EIA, “tends to focus more on the impacts on hydrology and water systems” than what is covered in the FMP. A response from another government participant supported this by stating, “flooding problems [haven’t been] well addressed in the FMP, but [have been] picked up in the past in EIA.” An ENGO participant gave an example of this occurring, and recalled an instance during an EIA workshop for which the ENGO “developed maps that identify where [certain] wetlands are, so that if they have to go through them they can still maintain hydrology.” Another aspect of planning reported to be considered in EIA, yet often left out of the FMP process, was the impact of roads. According to one ENGO participant, “EIA helps with planning all roads, seasonal and temporary... in the past a lot wasn’t done and it ends up costing.”

Participants also noted that as a result of doing EIAs of forestry proposals there was more and more accurate baseline data from which to base development decisions and management solutions. For instance, an academic participant stated that:

...the value of ecosystem-based management has made them more accurate in their record keeping and record taking and knowing what they have on the land base and they all updated their forest inventories.

Another participant from government added that EIA “gives you the parameters of the landscape...that sets the context of all operation within a given area”. Although most industry participants did not agree that EIA contributes any value to the FMP, one industry participant stated:

...you think you know what your impacts are out there, but it puts science and rigour behind what those are. At the end of the day you have an idea of what are your most significant aspects, impacts: land, water, etc. and an idea how to mitigate it and it ended up changing our practices which is really good.

Another trend in participant responses indicated that through EIA there is a broader opportunity for public consultation and participation in the forest management planning and decision making process. For example, a government participant noted:

I think historically the EIA process has been doing is focusing on public concerns, maybe more than the FMP process does and by that I mean provincial public concerns. The EIA process goes throughout SK whereas the FMP process tends to be regional.

An ENGO participant agreed and stated that “the role for EIA is a bigger regional role”. A participant from academia noted that enhanced consultation may have occurred locally as well and that “it probably has caused or increased the amount of consultation between people on the land, the companies and the stakeholders.” As an example, this participant noted that prior to EIA, companies had different ways of preparing forest management plans, “their fur blocks varied for instance and I think that [one] started to look more like [the other] in the end... it’s increased conversation between the two groups.”

4.6 Integrating effective EIA into SFM planning

Over the course of each semi-structured interview, participants were asked a two-part question concerning the potential of formally integrating EIA and the FMP into a single process. The first part of the question asked participants to provide their views on what they perceived to be the opportunities, as well as challenges and constraints that are likely to result if the two processes were to be fully integrated. These results are presented in the sections that follow. The second part of the question asked participants to state whether, in their view, the EIA and the FMP processes should be formally integrated or remain stand-alone processes (Table 4.6).

Table 4.6 Frequency of interview responses¹ by category of agreement for whether or not EIA and FMP should be integrated

Participant Affiliation	Should EIA and FMP be Integrated?		No opinion
	YES	NO	
Government	7		
Industry	3	2	
First Nations			2
ENGO	1		1
Academic	3		
Totals	14 (74%)	2 (10%)	3 (16%)

¹n=19

4.6.1 Opportunities for the procedural integration of EIA into the FMP process

Seventy-four percent (n=14) of participants stated that EIA and FMP should be a single, integrative process. A primary response in support of this was that through integration, time and cost inefficiencies in the current system of FMP approval could be improved. As one participant from industry stated:

I think that when you're dealing with a sustainable resource, with already a pretty well developed diligence matrix of regulations and statutes, then you don't need [EIA], it's just another layer that adds cost.

As a response to the perception that EIA adds a layer of unnecessary cost, a participant from government agreed that current practice EIA was not ideal and added:

I'm on board with it not being duplicated; it's a waste of time and resources... I don't support continuing doing it that way we were before because it's wasteful. We have two processes doing the same thing where there are really important things that were not doing anywhere.

As highlighted above, issues of overlap in coverage between the EIA and the FMP was a major concern for participants. As one industry participant stated, "there is no benefit to spending dough on redundant plans," and another noted that "in the form it was in it was onerous and awful, there's got to be a better way..."

The answer to this procedural overlap and time and cost inefficiencies for some was to do away with the EIA process for 20-year FMPs altogether. However, for most, the opportunity to integrate the two systems was favourable. One industry participant noted that "it shouldn't be stand alone, it should be integrated. The FMP cost six million dollars! ... The terms and conditions in the EIA should be equitable [with the FMP] I think". Another industry participant agreed and said:

...whatever exists now should be fully integrated into the FMP process and it has to a large extent, it still sits out there as a separate entity which is why we had to generate a [*Change in Development*] document. It was our view at that time... that this is crazy, we're dealing with it all right now and why would we have to have a separate process?

A participant from government supported the prospects of integration and agreed that there is opportunity to integrate the two processes by their very nature. This participant stated that fundamentally, EIA is "very technical" and "process-oriented", while the FMP is also "very

technical, but more open”. However, the same participant stated, “...you could collapse the two of them together...there’s parallelisms all the way through the two processes”. Another government participant pointed out that through integration, aforementioned issues with procedural overlap in some aspects and failure to assess important impacts through either process in others may be overcome. A contentious issue in this regard was the identification and mitigation of impacts to hydrological systems as a result of forestry activities (e.g. road crossings). In this regard, the government participant stated:

...that’s one area where we intend on building up our questions in the FMP process, around impacts on quantity and quality of water generated from forest ecosystems... for example, you’re to keep your road development under a certain cap for total kilometers that was suggested in the EIA. We could have done that in the FMP process but we didn’t...

Participants regularly brought up the perceived opportunity of an integrated approach to extend the EIA process to include cumulative effects assessment (CEA) and/or encompass a more regional/strategic mandate for assessment. The need to account for cumulative effects on a regional landscape, such as a FMA area, was expressed by participants during interviews. For example, one ENGO participant was concerned with cumulative effects and demonstrated a problem that can occur within an FMA:

forest companies bend over backward to do everything right and follow the rules, then you get someone just come in and cut right through a protected area because all they need is a permit, they don’t have any regulations ... Like exploration in Mistik’s FMA for example, there is oil and gas development but exploration doesn’t count as a development...

Another participant from academia suggested that if a “company has a [FMP] that is sufficiently EIA-like, other activities and uses such as drilling for oil... wouldn’t be excused without assessment.” Although First Nations participants mostly chose not to share their views on the procedural integration of the EIA and the FMP processes, several comments were made during interviews that, in a big-picture way, addressed this issue. One First Nations participant expressed that “we still live traditionally” and went on to state that “we still go to the land base and get our own...traditional meals.” To further emphasize this point, this participant gave an example of why it is important for the entire forest ecosystem and all its parts to be maintained:

...what would happen to non-Aboriginal communities if the government went into a grocery store and sectioned off an area and said you cannot buy these foods right now because they belong to us and we're going to dig a hole here? You can eat from the different sections, but what happens if they cut off the meat supply and you go back the next day and it's open but you realize that it may be tainted? Say the produce part is now occupied and it continues there. The forest is our grocery store... the way the uranium is now it may taint everything and our medicines are out there, our foods, our gardens and so on. What kind of push back would happen if the grocery store was tainted? That's the way the elders explain it.

Another First Nations participant indirectly addressed the issue of accounting for cumulative effects at the forest-level and agreed that forest companies should not be the only resource users subject to government standards like EIA and long-term management planning. This participant suggested, "maybe it's a national concern...it's environment, it's still part of the earth and anything you do to Mother Earth is right across the board, Mistik did a little bit, everybody should do it."

One government participant was relatively optimistic about Saskatchewan's ability to address cumulative effects through EIA and FMP integration. This participant stated, "we have more options and better ability because we weight earlier in the development stage than [other provinces] that are so far past the threshold that it's a big reclamation." For example, a participant from government suggested that EIA "is a good place to look at the impacts across all the sectors and the FMP in more detail for the forest industry. There is a role for EIA on a regional basis." Another government participant agreed, noting that:

There is a role to deal with cumulative effects assessment; we need a way of doing that. The process, the system, needs to evolve. One option around regional cumulative effects assessment is for the EIA process to address those concerns at a regional level with all the activity that's going on with all the industries.

This was noted also by another government participant, who added that "we haven't had a system that addressed CEA... at some point you need a threshold... I think EIA has a role in regional CEA, we haven't got planning processes that pull those things together anymore." It was in the same context that an academic participant questioned: "While we have the luxury of time, why aren't we doing SEA?" Another academic agreed and added, "If [EIA] never involves SEA, it won't be as effective as it could or should be". Similarly, one government participant posed:

There is in my perception a necessity, at a provincial level to have an overview resource use strategy that takes into account forestry, mining and all resources...when you establish strategic pathways... when you monitor in a cumulative effects scenario, you get the opportunity to evaluate those pathways and shift resource uses to achieve sustainability goals

Participants largely expressed that the opportunity to address cumulative effects, particularly from other sectors and land users not currently subject to EIA or other resource management regulations, through EIA would have to assume a greater responsibility. It was suggested that, at a minimum, EIA ought to account for CEA within its mandate and this ought to be administered from a strategic, or SEA, perspective.

4.6.2 Challenges and constraints to integrating EIA into the FMP process

Although only two participants expressed direct opposition to the formal integration of EIA into a FMP process (see Table 4.6), several fundamental challenges were reported across participant responses. In particular these involved: the integration of diverse and deeply ingrained ideologies related to each process; accounting for changing cultural values within and among Aboriginal, First Nations, and northern communities; supporting a new framework with adequate human and capital resources; and strengthening the combined processes in their assessment of cumulative effects.

Several participants reported that in integrating EIA into a FMP process, a distinct barrier would likely be present to overcoming the diverse and deeply ingrained ideological views of stakeholders related to each process. According to several participants, there is a division in the way people in Saskatchewan view forests. One government participant stated that “there’s a view of those that live and make their living out of the forest, which I’ll call the socio-economic perspective” and there is also a “conservation perspective,” which is held by those who look at forests out of a “conservation ethic with a recreational potential”. For example, the same government participant noted a significant challenge during a public meeting based around the original application of EIA to 20-year FMPs:

there was some really acrimonious debate... people were totally ingrained into a process-oriented EIA within the province and all they could see was the conflict, they couldn’t see the data gathering and the compatibility scenarios

This participant went on to note that “one of the biggest challenges is human nature...you’re going to have camps that want to maintain individuality on either side.” For example, “there are

those that will want the EIA process to drive everything and those that say I just want trees out of the bush so let me do my job.” An ENGO participant also identified a polarity in stakeholder mindset and stated:

My experience is that people come with two types of concerns: one is very specific: for example, I don't want my trap line logged in this half km radius. The other is very philosophical: we don't want to see clear cutting in our forests. I feel it's very broad or too specific and there is no level of common talk in terms of process.

However, one government participant stated that overall “those are the extremes” and “in the middle there's so much interaction that from a technical perspective there's nothing stopping [integration].” Yet, as an industry participant noted, the interaction ‘in the middle’ is also a challenge and “everything in forestry now is done through a black box, all of the modelling... it's still too complicated for an ordinary person to digest.” Another from industry expressed a frustration in accommodating such diverse views and suggested there is a challenge in separating wants and needs when assessing impacts and developing management plans. This participant noted that “in the past we've had to collect information that no one has been able to explain why it's necessary.” Another from academia noted a challenge to integration in terms of incorporating innovative ideas into forest management planning. It was felt to particularly be the case in the context of evaluating project alternatives. The participant explained that “if you want to bring in unconventional thinking you need to go to the EIA process... considering alternatives in the FMP is constrained by conventional thinking.”

Another barrier to integrating effective EIA into the FMP process expressed by participants was accounting for changing cultural values within and among First Nations, and northern communities. As one government participant noted, “I think that there's pieces missing, and one of the major ones is an effective Aboriginal component to integrating two sides.” It was suggested that social and cultural perspectives in and around northern communities such as those in the bounds of the Mistik FMA now encapsulate both traditional and modern perspectives and values. As one participant from an ENGO stated, “I think we're running into problems meeting northern needs as well as those cultures changing with the times,” on the one hand you get people saying “we have a traditional lifestyle we'd like to maintain and we can't do that if your cutting,” yet on the other hand we have people saying “we want this industry because we want people to have jobs.” This view was reflected in interviews with First Nations participants, where

one expressed high value on traditional forest management. It was stated that forest users ought “not to cut as many trees as they can, but just take enough for their house and firewood and whatnot.” Meanwhile, another First Nations participant noted that “the idea from our leaders was to develop as many of our First Nation people to take in as many forestry jobs as they could.” On that note, one government participant reported:

Mistik Management is not the Mistik that I knew...It’s very cut down from what it used to be. I think initially there was a very real intent to yes, maximize their output from the FMA, but there was a very honest intent to draw in the Aboriginal side of things...after all, at that time they were 50-50 owners and now they’re 100 percent owners. That economic ethic is still there but when I talk with MLTC and with the executive level of NorSask, I find that they’ve been able to shift things away from the environmental perspective, more towards the business perspective.

Limited human and capital resources at the provincial level were reported to be another constraint to integrating effective EIA into FMPs. Although some stated that integrating the two processes would overcome some of the resource constraints, others suggested there are not enough resources to facilitate an integrated approach. One government participant stated that “there’s a cumbersome side to [integration], too many tasks to handle.” A response from industry supported this, “the challenge is economic and today they are real challenges.” Another industry participant emphasized the effort required to produce required documents, stating an example where “we worked on it for four years... it was probably five to seven people on it full time within the forest lands group and all the consultants on the environmental study.” Meanwhile, another government participant noted that “limited staff and resources make us cooperate... we have to achieve a lot with a few staff...we don’t have the tax payer base and not enough [young] folks to fill the positions.” However, this participant saw integration as a means to address resource limitations exacerbated by having two processes run side by side and enhance “coordination across agencies”, which currently “is tough.”

Finally, participants expressed that adequately considering cumulative effects in an integrated process may be a challenge. Specifically, one ENGO participant stated concern that with EIA and FMP approvals stemming from one decision process, “consolidating it to one branch might cause problems because they don’t have a critical enough of an eye.” The ENGO gave an example scenario where, “the environment department may become overshoot by oil, gas, agriculture and economic interest...so many things may take precedence over it.” A participant

from government expressed that “without baseline info on other projects acting cumulatively” on the land base, it would be a challenge to appropriately describe and address cumulative environmental effects. Another from government suggested that “The Ministry of Environment has this single environmental perspective on industrial, municipal, and so forth and it looks at everything with that perspective and tends to channel all its resources to that perspective.” The challenge as mentioned by this participant is that when you’re dealing with other industries and their impacts and values on the landscape, it may require an assessment and planning framework to be undertaken at a more regional or strategic level. The participant stated that, “because there you can partition and make things more manageable in terms of the interactions.” According to a participant from industry, assessing cumulative effects may also pose a challenge, if it is to be a goal of an integrated process, because it would require other sectors to become subject to EIA. As well it would require, “identification up front of what constitutes the basis for each EIA-type process.” However, this participant went on to state that “I’m sure the same could be done for other industries as well.”

CHAPTER 5 DISCUSSION

Environmental impact assessment has been applied to 20-year FMPs in Saskatchewan since the mid-1990s, and argued by some to be characteristic of higher-order SEA (see Gachechiladze et al. 2009). However, little attention in the literature has been given to the outcomes of integrating EIA with industry planning (Noble 2004). Calls for case examples to address the outcomes and potential benefits flowing from these relationships have been made (Clark 2002; Duffy 2004). Yet, with limited application of EIA to natural resource sectors such as forestry, learning to enhance sustainable environmental management outcomes through EIA is slow. In response to calls for a more outcomes-based evaluation of EIA that focuses on its efficacy as a tool for ongoing environmental protection and management, lessons are drawn from Saskatchewan's forest resource sector. In particular, results indicate that by applying EIA to 20-year FMPs, a higher-order assessment process has resulted. This process incorporates, although informally, multiple levels of ecological, socio-cultural, and economic impacts geared towards sustainability outcomes. This is discussed under the headings of three overall observations that have emerged from this study. The first identifies that value is added to long-term FMPs when EIA approval is required prior to plan implementation. The second concerns other plans and programs involved in the overall and ongoing management of a forest, and suggested ways of strengthening EIA through enhanced horizontal linkages. The third suggests that a major lesson emerging from the Mistik example is one of strong public participation and incorporation of multiple stakeholder ideologies that is crucial to enhancing the efficacy of EIA more broadly.

5.1 Benefits of an Integrative EIA Framework

Environmental impact assessment as applied to 20-year forest management planning in Saskatchewan can facilitate SFM outcomes in ways that typical project-level EIA and stand-alone forest management planning has not. Gachechiladze et al. for example, argue that although no formal SEA system exists in Saskatchewan, the way in which EIA is applied to the FMP process is “SEA in all but name, and illustrative of the value of integrating SEA within broader industry planning and decision-making processes” (2009: 48; see also Noble 2004). In this sense, the value that is added comes from mandatory and ongoing follow-up and FMP renewal provisions, long-standing implementation of adaptive management in planning and practice, and

a functioning strategic forestry planning system that is hierarchically tiered from provincial SFM goals down to site-specific operating plans (see Gachechiladze 2009). The Mistik case is demonstrative of each of these SEA components. Results seem to indicate that higher-level environmental and socio-economic standards have been implemented for forest management planning than what existed prior to EIA application. Findings from this study are consistent with others that have examined the capacity of EIA to integrate, and facilitate sustainable environmental planning and policy outcomes. Such findings have also concluded that it was useful to consider alternatives to development, enhance ecosystem-based management, broaden the scope of public participation, and incorporate multiple disciplines and societal views into planning (e.g. Noble 2004; Lawrence 1997; Sinclair et al. 2008; Morrison-Saunders and Bailey 2009; Nykvist and Nilsson 2009; Hanna et al. 2011).

However, some results emerging from the Mistik case indicated that the current use of EIA for 20-year FMP approval is *passé* and its ongoing utility for influencing SFM outcomes is decreasing at an increasing rate. To illustrate this point, some suggested that there may be no need for EIA in sectors where existing processes include the consideration of and pose mitigation strategies for adverse environmental impacts, provide opportunities for stakeholder input, and consider diverse values (see Bonnell 2003; Hanna et al. 2011). This appears to be the case in Saskatchewan, where provincial forestry regulations account for many critical aspects of EIA. For example, the *FRMA* and subsequent FMP requirements now include provisions to:

ensur[e] that an informed public has the right to participate in deciding how to balance the need to use provincial forests for economic, social and cultural benefits while ensuring the long-term health of forest ecosystems is protected (Government of Saskatchewan 2009).

It has been put forward that EIA adds value as an “action-forcing mechanism” (Lawrence 1997: pg. 33), and is an important first step in SFM planning. However, in ongoing practice, significant time and cost inefficiencies, stemming from procedural overlap and duplication, have been considered to undermine efficacy. Typically, environments are assessed and managed by various and at times overlapping processes of analysis and application (Lawrence 1997). Results of this study, as supported by the literature, suggest that EIA may not be the only or the most appropriate tool for action. Several others have argued that enhancing the integrative capacity of EIA is a primary means of increasing its effectiveness (Manning 1990; Lawrence 1997; Kirkpatrick and Lee 1999; Noble 2004; Hanna et al. 2011). Others note that the minimization of

cost and time associated with EIA tends to increase efficiency (Hilding-Rydevik 2006), and efficacy (Sadler 1996; Boyden 2007; Cashmore et al. 2010). Results from the Mistik case support this, and calls for formal integration of the EIA and FMP processes to address inefficiencies have been made by regulators, practitioners and concerned stakeholders alike. These concerns are currently being addressed as Saskatchewan moves toward a ‘results-based’ regulatory framework that will combine EIA with other environmental and forest management regulation into one *Environmental Code*.

However, as EIA moves toward being more integrated into planning and decision making for sustainability (see Gibson 2002; Morrison-Saunders and Fischer 2006), in practice efforts to strengthen the process have been matched with steps to streamline, harmonize or otherwise make the path of deliberation and decision-making more efficient (Gibson 2002; Gachechiladze et al. 2009; Stern et al. 2009). In the Mistik case, results indicate that if integrated, EIA components necessary to ensure SFM should still be included and upheld irrespective of time and cost constraints. It has been suggested that the added benefit of EIA to management efforts is conducive to a more critical consideration of proposals and identification of risks that may have otherwise been neglected (Gibson 2002). Nevertheless, ensuring that the results of forest management planning are assessed at a level capable of meeting sustainability goals, may be more of a task than project-level EIA is built to handle (Benson 2003; Morrison-Saunders and Fischer 2006; Cashmore et al. 2008).

5.2 Linking other horizontal SFM processes under an integrated framework

Monitoring and feedback and public participation pervade the literature as critical components of better environmental planning and decision-making (see Morrison-Saunders and Bailey 1999; Diduck and Sinclair 2002). As it relates to 20-year FMPs in Saskatchewan, monitoring occurs at multiple scales and feedback is reported through annual reports, five-year rolling operating plans and every 10 years in the renewal of the 20-year FMP (Noble 2004; Gachechiladze et al. 2009). In the Mistik case, feedback and learning associated with monitoring and public engagement has done more to influence ongoing forest management strategies than it has to enhance EIA effectiveness. This is particularly due to weak horizontal linkages between processes acting alongside and outside of EIA provisions for monitoring and participation. Lawrence (1997) argues that EIA is a powerful tool capable of realizing sustainability ends, but

in order to be effective it must be “linked, coordinated, and integrated” with broader strategies, all directed toward sustainability (pg. 33).

A major challenge to evaluating the efficacy of EIA in the context of 20-year forest management planning in Saskatchewan, as aforementioned, is discerning the extent to which EIA has evoked SFM outcomes. This is especially difficult where there is considerable procedural overlap between the two processes. This has particularly been challenging in the evaluation of provisions for monitoring and follow-up. These provisions often appear effective and oriented toward sustainability goals, yet they cannot be clearly linked back to outcomes flowing from the EIA process itself. Although literature on this topic is rare, it has been stated that greater attention must be paid to horizontal linkages between monitoring and reporting systems extant in the forest sector (Gachechiladze et al. 2009). In addition, EIA, as it is applied to 20-year FMPs, does not function as typical project-based EIA (see Noble 2004), but rather operates as a higher-level SEA, albeit informally (Gachechiladze et al. 2009). Prior to EIA application, FMPs in Saskatchewan were required to undergo a renewal process every 10 years as a requirement of the FRMA. However, results from the Mistik case indicate that monitoring provisions did not include broader ecosystem-based management goals and focused almost exclusively on sustaining optimal timber yields for profit maximization. Therefore, it may be the case that as a result of EIA, in combination with shifting societal expectations influencing enhanced forest management practices, broader consideration of environmental effects has resulted. This is evident through its emphasis on integrated resource management, as well as the need to consider social and economic impacts of forestry activity with the broader goals of sustainability in mind.

After 15 years in practice, forestry regulations and industry standards have evolved to be much more considerate of sustainability goals, including the need to maintain and/or enhance environmental, social, and economic benefits more broadly. In the Mistik case, monitoring programs were vaguely stated in the EIA as requisites for FMP approval. Ongoing monitoring and feedback are implemented through the FMP, and in more recent years, through voluntary forest certification requirements as well. As a result, and despite being originally necessitated through EIA, the most meaningful monitoring and feedback (i.e. that which informs and influences subsequent annual operating plans and renewed 20-year FMPs) is done by processes acting outside the scope of EIA. Therefore, a major challenge to enhancing the effectiveness of

future EIA is the lack of monitoring of forest activities post-development through specific EIA-based processes. Also, existing monitoring programs are not set up to adequately inform EIA through information sharing of generated feedback. Under this model, post-approval monitoring occurs under agreed-upon processes that are separate, but linked to the EIA. Such monitoring programs are not regularly checked up with by EIA regulators, as it is beyond the requirements of their role. As Gachechiladze et al. (2009) note, the result is often that emergent and external issues, particularly those associated with socio-economic impacts are often left out of monitoring and evaluation methods.

Feedback generated through public participation in EIA is considered to be critical to effecting better environmental decisions. This occurs through social learning (see Noble 2010; Sinclair et al. 2008), as well as enabling the transition to sustainability (Diduck and Mitchell 2003; Sinclair and Diduck 2005; Gibson 2006). However, in order to reap the benefits from this learning, EIA will need to increase its integrative capacity to include other processes that more regularly engage with the public. This is particularly evident in the Mistik case, where despite provisions abound for community and stakeholder engagement outside of EIA, feedback and learning generated through these processes are not linked back to inform the process. The result is a diminished capacity to enhance the effectiveness of EIA more broadly. It has been noted that effective public engagement is necessary from the initial consideration of a proposal to its decommissioning or renewal (Gibson 2006). As an example, results emerging from the Mistik case indicate that prior to FMP approval, EIA was effective in that it broadened the scope of participation to include concerns of stakeholders beyond the local FMA area. However, ongoing engagement with the public has occurred primarily through regular meetings between industry and stakeholders to share information and discuss concerns. This has occurred in the form of co-management boards and public advisory groups, and the results of which have been used to inform ongoing forest management planning and decision-making. In Saskatchewan, where it has been suggested that EIA and forestry are well integrated, it may be the case that feedback from monitoring programs is informally shared. The problem is that feedback generated through these processes may not be formally related back to EIA administrators, unless a significant change in development is identified and reported, which triggers reassessment (see section 16 of the Saskatchewan *EAA*).

Overall, mechanisms in place to engage the public and monitor effects of forest activities have resulted in more informed forest management decisions and institutions open to diverse and distinct values. Yet, significant gaps in the literature exist in regard to the integration of EIA within industry planning in practice (Noble 2004). In particular, little has been written on the relationships between stakeholders in the EIA process (Morrison-Saunders and Bailey 2009), and much less attention has been focused on post-decision follow-up and monitoring (Gachechiladze et al. 2009). This leaves few examples from which to draw lessons about the utility of EIA in this capacity. Therefore, it would seem appropriate to revive EIA under a formally linked regional or strategic assessment process for forest management as suggested by Duffy (2004). In such a way, lessons learned from processes facilitating ongoing public engagement, such as those stemming from the Mistik example, may be more readily linked back to inform other sectors and enhance EIA effectiveness more broadly.

5.3 Multiple Ideologies

Environmental impact assessment is a useful and important tool for balancing environmental, economic and social trade-offs and incorporating diverse stakeholder values in decision-making related to forest management planning and operations. However, despite being well-known as a highly integrative tool for improving environmental planning and management (Sadler 1996; Wood 2003), and notwithstanding the enormous environmental impacts linked to forestry activities, EIA has not been regularly or widely applied to the forest sector (Duffy 2004; Bonnell 2003). Subsequently, substantive outcomes of EIA's application to forestry (i.e. those which signal whether or not better decisions follow as a result of its application), have not made their way into the literature. In addition, Hanna (2009) notes that what is considered 'effective' EIA is also subjective and varies between regulatory systems, resource sectors, and amongst proponents and the public. As a result of multiple, and at times conflicting, stakeholder understandings and expectations about what EIA is meant to achieve, the capacity for EIA to satisfy all parties involved is heavily burdened (Fuggle 2005). This is evident when EIA is applied to forestry. Forest management policy, in the past, has tended to favour timber production at the cost of other forest-related interests (Hanna et al. 2011). Therefore balancing diverse forests uses and user values in planning and decision-making is an ongoing challenge.

Sustainable forest management encompasses more than timber productivity alone. It also accounts for entire forest ecosystem health and human well-being, and is an explicit goal of EIA's application to 20-year forest management plans in Saskatchewan. As Gibson (2006) notes, such efforts are not driven by desires to preserve traditions (e.g. conventional timber-based management), but are meant to challenge and improve traditional approaches and entrenched habits in decision-making. However, some have cautioned that as EIA systems move to become more integrated with industry planning and operations, they may lead to an undermining of environmental representation in favour of socio-economic trade-offs (Morrison-Saunders and Bailey 2006). Others acknowledge this concern and agree that in the EIA process the decision is inherently political and involves trade-offs between environmental, social and economic considerations, which are based on vested stakeholder interests and may reflect power relationships (Cashmore et al. 2004). These findings have serious implications for the future state of EIA in Saskatchewan. This is particularly the case as it evolves within a 'results-based' regulatory framework under a government committed to bringing "prosperity and growth" to the province through extensive energy development (see Wall 2007).

However, much has been written in recent literature to suggest that a more holistic 'adaptive management' approach in decision-making is conducive to better environmental outcomes. This approach seeks to integrate a science-based understanding of ecological systems with human values and interests (see Holling 1995; Brunner 1997; Margoluis and Salafsky 1998; Clark 2002). The Mistik case shows a unique example of adaptive management in practice, resulting in reasonably balanced trade-offs between timber productivity and environmental protection through multiple strategies. For example, in the aftermath of subjecting 20-year FMPs to the EIA process for approval, outcomes such as broader public participation, consideration of non-timber values, economic benefits flowing back to local communities, and programs for ongoing monitoring and feedback were realized. This occurred as a result of an integrative planning system that has informally combined EIA with an institutionalized FMP process. Even more importantly, these processes together have acknowledged other mechanisms such as community and industry initiated co-management boards and voluntary forest certification standards. This has provided a long-standing and on-going forum to negotiate and construct SFM goals and management solutions.

Examples from the literature warn that with little knowledge of different stakeholder values in the EIA process (Morrison-Saunders and Bailey 1999), and fear that political objectives focused on the promotion of economic efficiency (Gibson 2002, 2006), may come at the expense of effective environmental protection and management (Sadler 1996; Fuggle 2005; Noble 2009). This situation has played out in the Mistik case and remains an ongoing concern. For example, the decision to harvest the forest was based on a compromise between diverse stakeholder values and valuations of the land. The forestry proponent wished to turn a profit and valued the capacity of the land for its timber productivity. Other stakeholders brought their own sets of values to the decision-making table. Some wished to preserve the status quo of the land (i.e. no-harvest), while others were interested in the opportunity to work in the forest sector and were hopeful that development would enhance their economic status. Decision-makers were riddled by the competing values of society, that task of balancing trade-offs between environmental, social and economic interests. As Morrison-Saunders and Bailey (1999) suggest, the outcomes of such decisions are difficult to predict as they may reflect vested political interests and power relationships outside of information provided by the EIA. Likewise, Fuggle (2005) argues that EIA has been undermined in recent years due to conflicting expectations over what the process is meant to deliver and a lack of appetite to implement findings that are not politically expedient. This is also supported by literature which states that under certain political circumstances, the environment is viewed as a cost and is often sacrificed in favour of economic growth and development (Gibson 2002; Hanna 2005; Cashmore et al. 2010).

To date, this has not been the case in the Mistik example and lessons emerging suggest that EIA has been a useful forum through which to consider multiple stakeholder values and to balance trade-offs through analysis and selection of a preferred alternative. Above all things, EIA in the Mistik case has proven to be an effective policy integration tool. For example, it has explicitly accounted for and initiated long-term planning and problem solving among not only competing natural resource uses, but also among people with varying perspectives and values. The combined use of EIA and subsequent FMP in the Mistik case has been effective to clarify and secure common interests. It has also implemented through policy, integrative solutions to address environmental issues and concerns. However, given that the political climate in Saskatchewan is shifting in favour of greater energy development (see Wall 2007), and given that oil and gas reserves exist within and just outside of the Mistik FMA, it has been suggested

by stakeholders that in order to be an effective tool for environmental management more broadly, EIA must extend its mandate. Specifically, it must do better to account for cumulative environmental impacts stemming from other natural resource sectors and industries.

Recently, attention in the literature has been focused on the idea that the legitimacy of EIA systems has tended to rest on the extent to which they are technically and scientifically competent (Fuggle 2005), as well as politically defined (Morrison-Saunders and Bailey 2006; Cashmore et al. 2010). As Cashmore et al. (2010) suggest, by allowing science (e.g. through empirical and methodological analysis) to dominate impact assessment methods, society has become encultured by its own constraints. In effect, decision-making gets called into question for privileging a scientific way of knowing that often seeks to avoid an analysis of uncertainty, despite its policy relevance (Cashmore et al. 2010). It is also argued that it fails to link-up with other ways of knowing (e.g. traditional ecological knowledge) that are becoming increasingly developed through participatory processes (Lay and Papadopoulos 2007). The Mistik case provides an overall successful example for enhancing the efficacy of EIA through more integrated management solutions and valuing multiple ways of knowing. The forest management company is wholly owned by First Nations shareholders and traditional knowledge based on generations of living and working in the FMA is engrained in the management practices of that company. This has translated into a corporate appreciation for maintaining existing hunting and trap-line habitat and valuing local sentiment concerning forest management practices at the decision-level. There is also added benefit of integrating science-based monitoring and modelling systems through annual reporting and certification commitments and social learning through ongoing public engagement in Mistik's forest management efforts. These flexible and adaptive management strategies outlined in the EIA, implemented through the FMP, and inspired by other SFM initiatives (e.g. voluntary forest certification) has produced a paradigm for integrated forest management that has proven to be extendable to other forest areas (e.g. Mistik's partnership with Nicaragua's Miskito Indians, in Thompson 2004).

As aforementioned, EIA has a role in challenging past constructs in decision-making (Gibson 2006). For example, relying solely on the biological sciences has done little to solve natural resource management issues to date (Brewer and Clark 1994). Clark (2002: pg. 3) suggests that the conventional scientific approach to impact assessment, while "good at solving certain kinds of problems", often tends to "simplify, misconstrue, or overlook" common interests

and fails to analyze the context of the development decision fully. In an article reflecting on 15 years of research into implications for learning through EIA, Sinclair et al. (2008), postulate that meaningful public participation is critical to making better environmental decisions. Additionally, EIA must go beyond typical techniques employed by government and industry (e.g. open houses), and use multiple methods to “attract participants, be flexible, collect meaningful data and lead to better decisions” (Sinclair et al. 2008: 424). It was also suggested that when communities are empowered to take control of the decisions that affect them, social learning occurs and participation in EIA is meaningful. Such community-based EIA is also rigorous and demanding and could produce meaningful insight to the causal links between inputs to decision-making and more sustainable environmental outcomes (Spaling 2003; Sinclair et al. 2008). This community-based approach has essentially been the model for participation in the Mistik case, where local communities have taken initiative to effect forest management decisions since the early 1990s. Their values were considered and concerns heard through multiple processes early in and throughout the EIA process. Participation was recorded in early EIA consultation as well as public advisory group meetings that were held by the forest company. Higher-level participation occurred through formation of local, community-based co-management boards, which shared in decision-making on initial FMP and renewal activities. Overall stakeholders in the Mistik case seemed confident in and were well informed about the forest management and operations taking place in their communities. However, the benefits of integrated planning and decision-making systems that incorporate multiple stakeholder values, such as the Mistik case, rarely inform EIA systems more broadly. It is therefore important that opportunities for social and political learning through case examples of successful EIA application to industry plans, similar to this one, are prepared and their outcomes more widely disseminated (Clark 2002; Duffy 2004).

CHAPTER 6

CONCLUSION

Evaluating the effectiveness of EIA as a tool for environmental management in the context of the forestry sector is a difficult task. This is particularly the case in Saskatchewan's forest resource sector, where legislated, albeit project-based, EIA takes on a unique role that may be characterised as 'project-based' only in name. This study set out to evaluate, as few others have done before, what it is that EIA actually achieves as a result of its application. It has attempted to answer whether better environmental decisions follow, because an EIA was done. In conclusion, based on a case example of EIA's application to Mistik Management Ltd.'s 20-year FMP, results of this research suggest that, with limitations, EIA is an effective tool for environmental management. This conclusion is based on the outcomes of applying a framework that combined 'best practice' EIA with leading SFM standards to measure the extent to which EIA is an effective tool for SFM. The outcomes of this application showed that EIA is an integrative tool that broadens the scope of assessment in the forest sector. Importantly, ways to advance the current structure of EIA for better environmental decision-making resulted and there are opportunities to implement these findings more broadly.

6.1 Improving the structure of EIA for Sustainable Forest Management

Environmental impact assessment viewed as a stand-alone process that is applied at the outset of the initial 20-year plan, and rarely followed-up on post-implementation, is unlikely to produce considerable gains for environmental management. However, EIA considered as the initial part, or overseer, of an integrated and innovative environmental management system that implements provisions for flexible planning (e.g. adaptive management) and includes ongoing monitoring and feedback that informs future plans, may be considered effective indeed. The accomplishments of EIA appear much greater when viewed holistically with the outcomes of the FMP and other community and corporate initiatives. However, teasing out which aspects of an overall sustainably managed forest can be directly linked back as a result of the EIA has proved difficult. Conley and Moote agree and suggest that, "making causal links between specific

management activities and ecological trends is often problematic, as it is difficult if not impossible to isolate variables” (2003: 380).

However, EIA applied to long-term FMPs does contribute to better management decisions by enhancing the scope and inclusiveness of forestry decisions in terms of impacts and diverse stakeholder values. It can be stated that EIA has broadened the scope of public participation beyond the local FMA area. It has also enabled the consideration of non-timber values in forest management planning, which prior to EIA application, was not a regulatory priority in the Saskatchewan forest industry. Meaningful participation (Diduck and Sinclair 2002; Sinclair et al. 2008) and consideration of longer-term management goals (i.e. sustainability) in the assessment of socio-cultural and economic impacts, in addition to ecological effects, is in line with the objectives of good environmental management (Gibson 2006; Weaver et al. 2008).

Environmental impact assessment has been criticised extensively for prioritizing efficiency over efficacy (Stern et al. 2009), being a mere bureaucratic exercise (McDonald and Brown 1995), and delivering more in theory than in practice (Lawrence 1997; Cashmore et al. 2004). Despite these criticisms, it has been suggested that effective EIA in practice requires that the process view long-term sustainability goals in the context of the decision at hand and address the question, ‘what can be done here?’ (Weaver et al. 2008). As results of this research show, when faced with the task of applying a typically project-based EIA to a long-term FMP the approach taken by Mistik was innovative and the result was a higher-order EIA. For example, without an existing precedent, Mistik acknowledged environmental thresholds and ways to maintain and enhance forest ecosystem health and human well-being. This was primarily done through flexible management planning and ongoing stakeholder engagement between Mistik and the local community, both of which were integrated into the initial FMP. The EIA also identified social criteria and encouraged local job creation and resource flows to the community to be a condition of FMP approval. Finally, economic considerations included in the EIA were included to inform and enhance long-term gains for Mistik and the local community, by choosing a preferred alternative that valued long-term forest productivity over short-term profit.

Where efficacy of the EIA in this capacity gets called into question is in regard to post-decision plan implementation and follow-up. The role of EIA tends to diminish over time to the point where some stakeholders, after 15 years since initial application, failed to perceive a role

for EIA in SFM whatsoever. In fact, disillusionment with EIA has occurred in the Saskatchewan forestry sector due to perceived procedural overlaps and the notion that requirements of the FMP can satisfactorily achieve the objectives of EIA. Therefore, in order to improve the structure of EIA to better align with and receive due credit for SFM outcomes, it ought to formally integrate with the FMP process, since it is responsible for initiating more holistic FMPs and setting the parameters for better environmental management to be achieved through them. As Scholten (1992) suggests, where existing frameworks for decision-making about plans exist, EIA should be integrated with them to avoid a replication of time and effort. Although EIA approval is a prerequisite for FMP implementation, the processes are still undertaken separately and the decision is ultimately political. Therefore, a formal integration to minimize time and cost inefficiencies, while ensuring that critical components of sustainability are upheld (Weaver et al. 2008), is the preferred structure for ongoing SFM.

Monitoring and feedback provisions acknowledged in the EIA and implemented through the FMP may be valuable to inform future short- and long-term FMPs, but have done little to inform the broader practice of EIA. In addition, monitoring and reporting, when used primarily to influence ongoing forestry plans and operations, may tend to falter on socio-cultural and broader environmental considerations. This is especially the case where post-decision follow-up through the EIA either does not exist, or is not enforced. The need for follow-up in EIA is not a new concept, and without it, ‘bad practice’ is not exposed, those responsible are not held accountable, and mitigation measures may be ignored while ineffective mitigation measures may proceed (Noble and Storey 2005; Fuggle 2005; Hilding-Rydevik 2006). Therefore, if results generated through monitoring and follow-up are to enhance EIA’s capacity to produce better environmental decisions they must be related back and formally linked to the EIA process. One way to do this is through formal integration of EIA and the FMP process, so that results generated from monitoring by one process is linked back, reviewed, and used to inform the other. In turn, this may also help to overcome the ‘silo effect’ perceived by many to inhibit the efficacy of EIA by enhancing information sharing across government agencies.

Finally, it has been noted that the greatest potential for innovation and enhanced environmental outcomes occurs “when EIA is applied as a proactive tool that is integrated into the planning process from the early stages” (Weaver et al. 2008: 95). This is essentially the role EIA has taken in the Mistik case – albeit informally. Results of this research suggest that EIA

ought to formally integrate with the FMP process in order to enhance social and institutional learning and circumvent procedural inefficiencies. Although formal integration within a results-based regulatory framework is underway in Saskatchewan, continuing to advance lessons learned from similar case examples (e.g. those informally operating in an integrative capacity), are useful to guide future decision-making toward sustainability. Environmental impact assessment as it is applied to forestry in Saskatchewan is an overall good example of the way in which EIA can contribute to better environmental decisions. It is a necessary first step in long-term and ongoing planning and goal setting for sustainability.

6.2 Research Contributions

This research was carried out in response to recent calls for a more substantive evaluation of EIA outcomes necessary to strengthen its role in ensuring better environmental management decisions occur as a result of its procedural undertaking. A case-study approach was used to identify stakeholder understandings and expectations for the role of EIA in 20-year forest management planning. This has resulted in significant documentation of stakeholder experience and perceived opportunities to enhance learning for SFM. These opportunities are found in the recommendations provided by EIA administrators, practitioners, proponents and those affected by its application to forestry in Saskatchewan. It was suggested that the process could be strengthened by formally integrating EIA with the FMP process and the perceived barriers and challenges to, as well as opportunities for, this integration were documented as a future resource.

This research also provides an overall successful case example demonstrating a pathway for legislated project-based EIA to assume a higher role in natural resource planning and management. For example, review of the Mistik FMP coincides with changing environmental legislation at the provincial level. In the fall of 2009, the Government of Saskatchewan introduced a key piece of legislation that would amend and combine certain aspects of four existing environmental acts (*The Environmental Assessment Act*, *The Forest Resources Management Act*, *The Environmental Management and Protection Act*, and *The Management and Reduction of Greenhouse Gases Act*) into one *Saskatchewan Environmental Code*. Passed by the legislature in spring 2010, the *Code* was expected to be implemented as early as June 2011. To date, the *Code* has not yet come into force (Government of Saskatchewan 2012). This new law is anticipated to place emphasis on achieving desired environmental management outcomes through results-based measures rather than prescriptive processes. If this is the case, and EIA is

formally integrated with the FMP process with the overarching of SFM, the framework established in this research may be a helpful guide for regulators, proponents and practitioners.

It is anticipated that the results of this research will provide an empirical basis to measure the success of EIA interactions with forest management plans and activities in the future. In addition, the established framework to evaluate the efficacy of EIA in the context of SFM planning and practice (Table 3.2) may be useful to others wishing to undergo similar studies of EIA as it relates to industry and resource planning. The undertaking of future studies like this one will be of particular importance to EIA critics who continuously report the need for a reassessment of project-based EIA and promote the need to better account for sustainability goals through EIA. Although this framework was established to address EIA's role in forestry, it may well be applied to other industries and EIA uses, or form a basis for subsequent evaluative frameworks in the future.

6.3 Study Limitations

This study attempted to evaluate the overall outcomes of EIA as a tool for environmental management. Three key limitations of this study unfolded as research was undertaken. First, and most importantly, the evaluation of outcomes as a measure of environmental management success in this research was not comprehensive. Second, the case example chosen for this research, despite its successes, may not be representative of EIA's application to SFM practices more broadly. Third and finally, the participant population was relatively small due to the difficulty experienced identifying and contacting several key individuals and groups.

The overall limitation of this study was that the analytical framework developed to evaluate the effectiveness of EIA as a tool for SFM was not comprehensive. It did not evaluate the contributions of EIA to any specific environmental outcome (i.e. improved water quality, increased habitat, etc.). Therefore it is debateable as to whether this research has effectively evaluated EIA's contributions to better environmental management. However, the theoretical underpinning of this research was based on the assumption that EIA is an information provision tool that to be effective, contributes to better environmental decision-making. The overall outcomes of forestry reports (e.g. provincial SOE reports) issued before and after EIA application were measured and stakeholder perceptions of the effectiveness of EIA for SFM were gathered. However, due to limited time and the difficulties associated with undertaking a

comprehensive evaluation of all perceivable environmental, social and economic outcomes (see Conley and Moote 2003), this research was limited to the framework established and the three overall questions asked to participants during interviews.

Clark (2002) suggests that case-studies can be an effective way to derive knowledge that can then be applied within a broader context and inform similar situations. As well, Weaver et al. (2008: 95) postulate, "...fieldwork from EIA case studies can make valuable contributions to the development of knowledge of environmental, social and economic systems", and should therefore not be discounted. Yet, it is important to note that these results are limited to a subset of EIA practice in one provincial FMA area. In addition, forest management in Saskatchewan may vary significantly from the management practices of other industries or forest operations in other areas. Another important point to note is that the Mistik example of EIA application to 20-year forest management planning is a unique example. During the course of this research, it was noted that other forest management companies operating within the province may not have the same degree of corporate environmental integrity as is possessed by Mistik. Therefore, although this is an important and successful example, it may not be representative of the general outcomes experienced in the application of EIA to forestry.

Also, an initial goal of this study was to obtain a relatively equal balance of stakeholder perspectives from all groups involved in EIA and the forestry sector, but the total number of participants was relatively small. This was due in part to the small population size of individuals who work at the EIA-forestry interface. Few individuals from First Nations were available for comment and although each of the ENGOs with expertise in the context of this study did comment, the number available to contact was significantly lower than those of other stakeholder groups. Likewise, many of the original participants involved with the Mistik EIA and first 20-year FMP have since moved away or on to other occupations. They were also unavailable for comment, making much of the knowledge gained based on perceptions flowing from the aftermath of the approved EIA and implemented 20-year FMP.

However, several participants interviewed and surveyed had first had experience with the formation of the original EIA and FMP and were able to give a life-cycle report from the state of environment prior to EIA application to present day. Despite a limited number of participants in some groups as compared with others, perspectives from both higher represented groups as well as those with lower populations tended to echo each other's responses. Given the small arena in

which EIA and forestry intersect, it was assumed that an appropriate representation of active stakeholders in that area was achieved. Finally, the research was limited because less than one-half of study participants completed and returned the distributed questionnaires. This did not prove to be a major hindrance to the overall results of this study, as much of knowledge necessary to address the objectives of this study was gained through stakeholder interviews. However, it did detract from the researcher's ability to provide in addition to interview responses a statistical example of stakeholder sentiment concerning the efficacy of EIA in contribution to SFM objectives that may have been used as a comparison in future research.

6.4 Future Research

According to Duffy (2004: 176), “[p]reparation of case studies and recommendations on the way forward to usefully broaden the use of EIA” in natural resource sectors is necessary, and the development of relevant sectorial EIAs and SEA deserves focused attention as well. Resource development, particularly in oil and gas, in Saskatchewan is a stated goal of the current provincial government and is likely to increase in the very near future. Therefore, it is necessary to take lessons from extant successful examples of EIA-linked and sustainably managed natural resources. There is also for future research to expand on the capacity for EIA to produce similar effects in other industries and resource sectors. Currently, EIA is not widely applied to forestry. This research is part of a larger study that seeks to evaluate the presence and absence effect of EIA for better forest management in Canada. It may be, as Taylor (1990) has suggested, that managing the environmental effects of forest management can be adequately dealt with by the forestry community itself. However, without sufficient knowledge of the value-added or subtracted by applying EIA to this sector through evidence generated from multiple case examples, this is cannot be confirmed.

Future research is also needed to enhance the capacity of EIA follow-up to inform future practice in these sectors. Environmental impact assessment monitoring and follow-up is a stated weakness of EIA in general (Gachechiladze et al. 2009; Noble and Birk 2011), and without enforced follow-up, learning through EIA does not occur. Therefore, ineffective strategies may perpetuate in practice and incongruences between approved activities and actual practice may further discredit EIA efficacy (Fuggle 2005). Future studies and recommendations to strengthen follow-up could enhance the efficacy of EIA more broadly.

In order to accomplish these goals it may also be necessary for a more strategic EIA system to be established to effectively account for and monitor cumulative effects. This is especially relevant in a FMA area where forestry activities are under much scrutiny and other activities may continue to bypass regulatory requirements. This is occurring in the Mistik FMA where oil and gas exploration activities, producing considerable environmental effects (e.g. from seismic drilling and fracking), are occurring without being subject to EIA until they are deemed a 'development'. It has been suggested by stakeholders in this study that at that point, adverse environmental effects may have already occurred and mitigation plans may be implemented too late to reverse considerable damage. Therefore, future research should also to study the capacity for EIA to be implemented on a more regional basis. This may better account for diverse land uses and cumulative effects. Significant research has been done on CEA (e.g. Baxter et al. 2001; Duinker and Greig 2006) and SEA (e.g. Fischer 2003; Dalal-Clayton and Sadler 2005) and may help to inform the way ahead should these alternative EIA models become necessary components of environmental management.

REFERENCES

- Bailey, J. 1994. EIA, management and policy reform: the tyranny of small decisions working well. Paper presented at the 14th annual meeting of the International Association for Impact Assessment, Quebec, Canada.
- Bailey, J. 1997. Environmental impact assessment and management: an underexplored relationship. *Environmental Management*, 21(3): 317-327.
- Barrow, C. 2006. *Environmental Management for Sustainable Development*. Second Edition. New York: Taylor and Francis.
- Bauer, P. 1984. Personal Reflections on Participant Observation as a Methodology in the Social Sciences. *Pastoral Psychology Human Sciences Press*. Vol 32(21) 140-145.
- Baxter, W., Ross, W. and H. Spaling. 2001. Improving the practice of cumulative effects assessment in Canada. *Journal of Impact Assessment and Project Appraisal*, 19(4): 253-262.
- Benson, J.F. 2003. What is the alternative? Impact assessment tools and sustainable planning. *Impact Assessment and Project Appraisal*, 21(4): 261-266.
- Black, P. 1983. Participant Observation and Logical Positivism in the Social Sciences: A Note. *World Development Great Britain*. Vol.11(4) 389-390.
- Bogdan, R. and S. Taylor. 1975. Introduction to qualitative research methods. *Journal of Contemporary Ethnography*, 6(2): 241-243.
- Bonnell, S. 2003. Environmental assessment of forestry in Canada. *The Forestry Chronicle*, 79(6): 1067-1070.
- Boyden, A. 2007. Environmental assessment under threat. *International Association for Impact Assessment Newsletter*.
- Bowden, M.A. and B. Weichel. 2005. Environmental Impact Assessment in Saskatchewan. In Kevin S. Hanna (Ed.) *Environmental impact assessment: practice and participation*, Second Edition Oxford University Press, Oxford and Toronto (in press).
- Brewer, G. and T. Clark. 1994. A policy sciences perspective: Improving implementation. In Clark et al. (Eds.) *Endangered species recovery: Finding the lessons, improving the process*, Washington: Island.
- Brunner, R. 1997. Barriers and bridges to the renewal of ecosystems and institutions: A review. *Journal of Wildlife Management*, (61): 1437-1439.

- Caldwell, L. 1993. Achieving the NEPA intent: new directions in politics, science and law. In J. Cannon and S. Hildebrand (Eds.) *Environmental Analysis: the NEPA Experience*. London: Lewis Publishers.
- Canadian Forest Service. 2012. "Sustainable forest management". Natural Resources Canada Website. <http://cfs.nrcan.gc.ca/pages/132>. Accessed: 13 October 2012.
- Cashmore, M. 2004. The role of science in environmental impact assessment: process and procedure versus purpose in the development of theory. *Environmental Impact Assessment Review*, 24(2004), 403-426.
- Cashmore, M., Gwilliam, R., Morgan, R., Cobb, D. and A. Bond. 2004. The indeterminable issue of effectiveness: substantive purposes, outcomes and research challenges in the advancement of EIA theory. *Impact Assessment and Project Appraisal*, 22: 295-310.
- Cashmore, M., Bond, A. and D. Cobb. 2007. The contribution of environmental assessment to sustainable development: toward a richer empirical understanding. *Environmental Management*, 40: 516-530.
- Cashmore, M., Bond, A. and D. Cobb. 2008. The role and functioning of environmental assessment: theoretical reflections upon an empirical investigation of causation. *Journal of Environmental Management*, 88: 1233-1248.
- Cashmore, M., Richardson, T., Hilding-Ryedvik, T., Emmelin, L. 2010. Evaluating the effectiveness of impact assessment instruments: Theorizing the nature and implications of their political constitution. *Environmental Impact Assessment Review*, 30, 371-379.
- CCFM. 2003. *Defining Sustainable Forest Management in Canada: 2003 Criteria and Indicators*. Canadian Council of Forest Ministers. http://www.ccfm.org/pdf/CI_Booklet_e.pdf
- CCFM. 2012. Sustainable Forest Management in Canada. Canadian Council of Forest Ministers. http://www.sfmcanada.org/english/pdf/SFMBBooklet_E_US.pdf
- CEAA. 1992. *Canadian Environmental Assessment Act*. Government of Canada. S.C. 1992, c. 37. <http://laws.justice.gc.ca/PDF/Statute/C/C-15.2.pdf>
- CEAA. 2010. Canadian Environmental Assessment Agency. Available online: www.ceaa.gc.ca. Accessed 20 October, 2010.
- CEAA. 2012. Overview: *Canadian Environmental Assessment Act, 2012*. Canadian Environmental Assessment Agency. Available online: <http://www.ceaa.gc.ca/default.asp?lang=En&n=16254939-1>. Accessed 14 August, 2012.
- Charron, M. 2005. Sustainable Forest Management in Canada: Clear policy – Questionable Practice. Science and Technology Division. Library of Parliament. PRB 05-13E.

- Clark, T. 2002. *The Policy Process: A Practical Guide for Natural Resource Professionals*. London: Yale University Press.
- Conley, A. and M. Moote. 2003. Evaluating Collaborative Natural Resource Management. *Society and Natural Resources*, 16: 371-386.
- Couch, W. 1988. *Environmental assessment in Canada: 1988 summary of current practices*. Ottawa/Hull: Canadian Council of Resource and Environment Ministers.
- Culhane, P. 1993. Post-EIS environmental auditing: a first step to making rational environmental assessment a reality. *The Environmental Professional*, 15: 66-75.
- Dalal-Clayton B, Sadler B. 2005. Strategic environmental assessment: a sourcebook and reference guide to international experience. London: Earthscan.
- Diduck A., P., & Mitchell, B. 2003. Learning, public involvement and environmental assessment: A Canadian case study. *Journal of Environmental Assessment Policy and Management*, 5(3), 339–364.
- Diduck, A.P. and A.J. Sinclair. 2002. Public participation in environmental assessment: the case of the nonparticipant. *Environmental Management*, 29 (4): 578-588.
- Doyle, D. and B. Sadler. 1996. Environmental assessment in Canada: frameworks, procedures, and attributes of effectiveness. Ottawa: Canadian Environmental Assessment Agency.
- Duffy, P. 2004. Agriculture, forestry and fisheries: the orphans of environmental impact assessment. *Impact Assessment and Project Appraisal*, 22(3), 175-176.
- Duinker, P.N. and L.A Greig. 2006. The Impotence of Cumulative Effects Assessment in Canada: Ailments and Ideas for Redeployment. *Environmental Management*, 37(2): 153-161.
- Dunster, J. 1992. Assessing the sustainability of Canadian forest management: Progress or procrastination? *Environmental Impact Assessment Review*, 12: 67-84.
- FAO. 2008. “Criteria and indicators for sustainable forest management”. Food and Agriculture Organization of the United Nations. Website: <http://www.fao.org/forestry/ci@45048/en/>. Accessed 13 October, 2012.
- Fischer, T.B. 2003. Strategic environmental assessment in post-modern times. *Environmental Impact Assessment Review*, 23, 155-170.
- FSC. 2004. FSC Principles and Criteria for Forest Stewardship. Forest Stewardship Council. FSC International Standard. FSC-STD-01-001 April, 2004.

- FSC. 2004. National Boreal Standard. Forest Stewardship Council Canada Working Group, 6 August, 2004. Available online: <http://www.fsccanada.org/docs/boreal%20standard.pdf>
- FSC Canada. 2011. Forest Stewardship Council. Website: <http://www.fsccanada.org/>. Accessed 7 December, 2011.
- Fuggle, R. 2005. Have impact assessments passed their 'sell-by' date? *International Association for Impact Assessment Newsletter*, 16(1): 1, 6.
- Gachechildaze, M., Noble, B.F., & Bitter, B.W. 2009. Following-up in strategic environmental assessment: a case study of 20-year forest management planning in Saskatchewan, Canada. *Impact Assessment and Project Appraisal*, 27(1), 45-56.
- Government of Saskatchewan. 1980. *The Environmental Assessment Act*. Chapter E-10.1, Statutes of Saskatchewan 1979-80.
- Government of Saskatchewan. 1996. *The Forest Resource Management Act*. Chapter F-19.1, Statutes of Saskatchewan, 1996.
- Government of Saskatchewan. 2007. Report on Saskatchewan's Provincial Forests. Available online: <http://www.er.gov.sk.ca/adx/asp/adxGetMedia.aspx?DocID=10408,5460,2936,Documents&MediaID=26483&Filename=Report+on+Saskatchewan>
- Government of Saskatchewan. 2009. Proposed Amendments to the Forest Resources Management Act. Saskatchewan Ministry of Environment. Available online: <http://www.gov.sk.ca/adx/asp/adxGetMedia.aspx?mediaId=1012&PN=Shared>. Accessed 24 November, 2011.
- Government of Saskatchewan. 2010. First Nation and Metis Consultation Policy Framework. Available online: <http://www.fnmr.gov.sk.ca/Consult-Policy-Framework.pdf>. Accessed 12 October, 2012.
- Government of Saskatchewan. 2012. Saskatchewan Environmental Code. Available online: <http://www.environment.gov.sk.ca/Default.aspx?DN=02fe0486-85da-472d-9bc5-ed8f8bb7d24c>. Accessed 13 May, 2012.
- Gibson, R. 2006. Sustainability assessment: basic components of a practical approach. *Impact Assessment and Project Appraisal*, 24(3): 170-182.
- Gibson, R. 2002. From Wreck Cove to Voisey's Bay: the evolution of federal environmental assessment in Canada. *Impact Assessment and Project Appraisal*, 20: 151-159.
- Hanna, K. and B. Noble. 2010. *Effectiveness and Canadian Environmental Impact Assessment*. A research proposal submitted to and approved by the Social Sciences and Humanities Research Council of Canada. Available online: <http://www.eiaeffectiveness.ca>.

- Hanna, K. (Ed.). 2005. *Environmental Impact Assessment: Practice and Participation*. Ontario: Oxford University Press.
- Hanna, K. 2009. Environmental impact assessment: Process, setting and efficiency. In Kevin S. Hanna (Ed.) *Environmental impact assessment: practice and participation*, Second Edition Oxford University Press, Oxford and Toronto (in press).
- Hanna, K. and R. Gibson. 2005. Progress and Uncertainty: The Evolution of Federal Environmental Assessment in Canada. In Kevin S. Hanna (Ed.) *Environmental impact assessment: practice and participation*, Oxford University Press, Oxford and Toronto
- Hanna, K., Polonen, I. and K. Raitio. 2011. A potential role for EIA in Finnish forest planning: learning from experiences in Ontario, Canada. *Impact Assessment and Project Appraisal*, 29(2): 99-108.
- Heinma, K. & Poder, T. 2009. Effectiveness of Environmental Impact Assessment system in Estonia. *Environmental Impact Assessment Review*, 30, 272-277.
- Hickey, G.M., Brunet, N. and N. Allan. 2010. A Constant Comparison of the Environmental Assessment Legislation in Canada. *Journal of Environmental Policy & Planning*, 12(3): 315-329.
- Hilding-Rydevik, T. 2006. Environmental assessment – effectiveness, quality and success. In L. Emmelin (Ed.) *Effective Environmental Assessment Tools – Critical Reflections in Concepts and Practice*. Research report No. 2006:03, Blekinge Institute of Technology.
- Holling, C. 1995. What barriers? What bridges? In L. Gunderson, C. Holling, and S. Light (Eds.) *Barriers and bridges to the renewal of ecosystems and institutions*, New York: Columbia University Press.
- IAIA and IEA. 1999. *Principles of Environmental Impact Assessment in Practice*. Routledge Environmental Management Series. London: Routledge.
- IAIA. 2012. “Mission, Vision, Values”. International Association for Impact Assessment. <http://www.iaia.org/about/mission-vision-values.aspx>. Accessed 1 September, 2012.
- James, F. 2011. “The FSC Story”. Forest Stewardship Council Canada. Available online: <http://www.fscscanada.org/fscstory.htm> . Accessed 7 December, 2011.
- Jay, S., Jones, C., Slinn, P., Wood, C. 2007. Environmental impact assessment: Retrospect and prospect. *Environmental Impact Assessment Review*, 27, 287-300.
- Kirkpatrick, C. and N. Lee. 1999. Special issue: integrated appraisal and decision-making. *Environmental Impact Assessment Review*, 19: 227-232.

- Lawrence, D. 1994. Designing and adapting the EIA planning process. *The Environmental Professional*, 16: 2-21.
- Lawrence, D. 1997. The need for EIA theory building. *Environmental Impact Assessment Review*, 17: 79-107.
- Lay, M. and I. Papadopoulos. 2007. An exploration of fourth generation evaluation in practice. *Evaluation*, 13: 495-504.
- Lee, N., Walsh, F. and G. Reeder. 1994. Assessing the performance of the EA process. *Project Appraisal*, 9(3): 161-172.
- MacDonald, G. and L.A. Brown. 1995. Going beyond environmental impact assessment: environmental input to planning and design. *Environmental Impact Assessment Review*, 15: 34-45.
- Mandarano, L. 2008. Evaluating collaborative environmental planning outputs and outcomes: Restoring and protecting habitat and the New York Harbor Estuary Program. *Journal of Planning Education and Research*, 27: 456-468.
- Manning, E. W. 1990. Conservation strategies—providing the vision for sustainable development. *Alternatives* 16/17(4/1): 24–28.
- Margoluis, R. and N. Salafsky. 1998. *Measures of Success: Designing, Managing, and Monitoring Conservation and Development Projects*. Washington: Island.
- McLafferty, C., Slate, J. and A. Onwuegbuzie. 2010. Transcending the quantitative-qualitative divide with mixed research: A multidimensional framework for understanding congruence and completeness in the study of values. *Counseling and Values*, 55: 46-62.
- Meredith, T. 2004. Assessing environmental impacts in Canada. In Mitchell, B. (Ed.). *Resource and environmental management in Canada: Addressing conflict and uncertainty*. Toronto: Oxford University Press. 467-496.
- Mistik Management Ltd. 1995. *Environmental Impact Statement for the Twenty-year Forest Management Plan*. The NorSask Forest Management Project. Vol. II. Part A. Submitted to SERM. Prepared by JE Hanna Associates Inc. Pickering, Ontario. November, 1995.
- Mistik Management Ltd. 1995. *Twenty-year Forest Management Plan*. The NorSask Forest Management Project. Vol. I. Part A. Submitted to SERM. Prepared with the assistance of Terrestrial and Aquatic Environmental Managers Ltd. Meadow Lake, Saskatchewan. November 1995.
- Mistik Management Ltd. 2007. *20-Year Forest Management Plan – Volume I Background Information Document*. Meadow Lake, Saskatchewan.

- Mitchell, B. 1997. *Resource and Environmental Management*. England: Addison Wesley Longman Ltd.
- Montreal Working Group. 1998. The Montreal Process: Criteria and indicators for the conservation and sustainable management of temperate and Boreal forests. Available online: <http://www.rinya.maff.go.jp/mpci/>. Accessed 1 September, 2012.
- Morrison-Saunders, A and J. Arts. 2004. Exploring the Dimensions of EIA Follow-up. Impact Assessment for Industrial Development: Whose Business Is It? 24th annual meeting of the International Association for Impact Assessment, 26-29 April, 2004. Vancouver, Canada, IAIA.
- Morrison-Saunders, A. and J. Bailey. 1999. Exploring the EIA/environmental management relationship. *Environmental Management*, 24(3): 281-295.
- Morrison-Saunders, A. and M. Bailey. 2009. Appraising the role of relationships between regulators and consultants for effective EIA. *Environmental Impact Assessment Review*, 29: 284-294.
- Morrison-Saunders, A. and T. Fischer. 2006. What is wrong with EIA and SEA anyway? A sceptic's perspective on sustainability assessment. *Journal of Environmental Assessment Policy and Management*, 8(1): 19-39.
- Nadeem, O. and T. Fischer. 2010. An evaluation framework for effective public participation in EIA in Pakistan. *Environmental Impact Assessment Review*, 31: 26-47.
- NAFA. 2006. The Government of Saskatchewan Guidelines for Consultation with First Nations and Metis People: A Guide for Decision Makers. NAFA Forestry. Available online: http://www.nafaforestry.org/forest_home/documents/Sask-Guidelines_for_Consultation.pdf.
- Noble, B.F. 2004. Integrating strategic environmental assessment with industry planning: A case study of Pasquai-Porcupine forest management plan, Saskatchewan, Canada. *Environmental Management*, 33(3): 401-411.
- Noble, B.F. 2009. Promise and dismay: The state of strategic environmental assessment systems and practices in Canada. *Environmental Impact Assessment Review*, 29, 66-75.
- Noble, B.F. 2010. *Introduction to Environmental Impact Assessment: Guide to Principles and Practice*, 2nd Edition. Toronto: Oxford University Press.
- Noble, B.F. and J.E. Bronson. 2005. Integrating Human Health into Environmental Impact Assessment: Case Studies of Canada's Northern Mining Resource Sector. *Arctic*, 58(4): 395-405.

- Noble, B.F. and K. Storey. 2005. Toward increasing the utility of follow-up in Canadian EIA. *Environmental Impact Assessment Review*, 25(2): 163-180.
- Noble, B. and J. Birk. 2011. Comfort monitoring? Environmental assessment follow-up under community-industry negotiated environmental agreements. *Environmental Impact Assessment Review*, 31: 17-24.
- Nykvist, B. & Nilsson, M. 2009. Are impact assessment procedures actually promoting sustainable development? Institutional perspectives on barriers and opportunities found in the Swedish committee system. *Environmental Impact Assessment Review*, 29, 15-24
- Parliament of Canada. 2012. *Enactment of the Canadian Environmental Assessment Act, 2012*. Division 1 Environmental Assessment. Available online: <http://www.parl.gc.ca/HousePublications/Publication.aspx?Language=E&Mode=1&DocId=5697420&File=74>. Accessed 14 August, 2012.
- Polonen, I., Hokkanen, P. and K. Jalava. 2011. The effectiveness of the Finnish EIA system- What works, what doesn't, and what could be improved? *Environmental Impact Assessment Review*, 31: 120-128.
- Rio Declaration on Environment and Development. 1992. Agenda 21. "Conservation and management of resources for development". Section II, Chapter 11. Available online: http://www.un.org/esa/dsd/agenda21/res_agenda21_11.shtml. Accessed 13 October, 2012.
- Sadler, B. 1996. International study of the effectiveness of environmental assessment, final report, environmental assessment in a changing world: Evaluating practice to improve performance. Canadian Environmental Assessment and International Association for Impact Assessment. Ottawa: Minister of Supply and Services Canada.
- Saskatchewan Environment. 2004. Forest Service. Development of Forest Management Planning Standards: A Discussion Document. Available online: <http://www.environment.gov.sk.ca/adx/asp/adxGetMedia.aspx?DocID=2021,897,878,862,244,94,88,Documents&MediaID=1113&Filename=Development+of+Forest+Mgt+Planning+Standards+-+Discussion+Document.pdf&l=English>.
- Saskatchewan Environment. 2007. Forest Service. Forest Management Planning Document. Available online: <http://environment.gov.sk.ca/adx/asp/adxGetMedia.aspx?DocID=1483,897,878,862,244,94,88,Documents&MediaID=732&Filename=Forest+Management+Planning+Document.pdf&l=English>
- Saskatchewan Ministry of Environment. 2009. State of Saskatchewan's Provincial Forests. Saskatchewan's 2009 State of the Environment Report. Available online: <http://www.environment.gov.sk.ca/soereport>

- Saskatchewan Ministry of Environment. 2011. Saskatchewan's State of the Environment Report. Available online: <http://www.environment.gov.sk.ca/soereport2011>
- Scholten, J. 1992. Contribution of environmental impact assessment to decision-making experiences from the Netherlands. In Biswas et al. (Eds). *Environmental Impact Assessment for Developing Countries*: 163-167.
- Sinclair, A. and A. Diduck. 2001. Public involvement in EA in Canada: a transformative learning perspective. *Environmental Impact Assessment Review*, 21: 113-136.
- Sinclair, A. and A. Diduck. 2005. Public participation in Canadian environmental assessment: Enduring challenges and future directions. In *Environmental Impact Assessment Process and Practices in Canada*, Hanna, KS (ed.), Don Mills: Oxford University Press: 53-74.
- Sinclair, A., Diduck, A. and P. Fitzpatrick. 2008. Conceptualizing learning for sustainability through environmental assessment: critical reflections on 15 years of research. *Environmental Impact Assessment Review*, 28: 415-428.
- Solow, Robert M. 1991. Sustainability: An Economist's Perspective. Paper presented at the Eighteenth J. Seward Johnson Lecture to the Marine Policy Center, Woods Hole Oceanographic Institution, at Woods Hole, Massachusetts.
- Spaling, H. 2003. Innovation in environmental assessment of community. *Canadian Geographer*, 47(2): 151-168.
- Stern, M.J., Blahna, D.J., Cerveny, L.K., Mortimer, M.J. 2009. Visions of success and achievement in recreation-related USDA Forest Service NEPA processes. *Environmental Impact Assessment Review*, 29: 220-228.
- Storey, K. 1986. From prediction to management: increasing the effectiveness of SIA. In H. Becker and A. Porter (eds.) *Impact Assessment Today*, volume II. Utrecht: Uitgeverij van Arkel.
- Taylor, J. 1990. Sustained timber production. In Technical Proceedings of the 34th Annual Meeting of the Canadian Institute of Forestry, November 22-24, 1990, St. John's, Newfoundland.
- Thompson, C. 2004. *Saskatchewan First Nations: Lives Past and Present*. Canadian Plains Research Center, University of Regina.
- Valentine, G. 2005. Tell me about...: using interviews as a research methodology. In Flowerdew, R. and Martin, D. (Eds.), *Methods in Human Geography: a guide for students doing a research project* Second Edition. 110-127. Glasgow: Pearson Education Ltd.

- VanNijnatten, D. 2002. "The Bumpy Journey Ahead: Provincial Environmental Policies and National Environmental Standards," in D. VanNijnatten and R. Boardman (Eds.), *Canadian Environmental Policy: Context and Cases*. 2nd edition, Oxford University Press.
- Wall, Brad. 2007. Saskatchewan Oil Sands Seminar. Premier Brad Wall's Remarks. Legislative Building. December 12, 2007, Regina, Saskatchewan.
- WCED. 1987. Report of the World Commission on Environment and Development: Our Common Future. Available online: <http://www.un-documents.net/wced-ocf.htm>
- Weaver, A., Pope, J., Morrison-Saunders, A. and P. Lochner. 2008. Contributing to sustainability as an environmental assessment practitioner. *Impact Assessment and Project Appraisal*, 26(2): 91-98.
- Wood, C. 1999. Comparative evaluation of EIA systems. In J. Petts (ed.) *Handbook of Environmental Impact Assessment, Volume II. Environmental Impact Assessment in Practice: Impact and Limitations*. London: Blackwell.
- Wood, C. 2003. *Environmental Impact Assessment: A Comparative Review*, second edition. Harlow: Pearson.

APPENDIX A

IAIA ‘EFFECTIVENESS’ CRITERIA

In 1996, the IAIA held a session on “The Environmental Impact Assessment (EIA) Global Guidelines Project” at its annual conference. Participants identified a need for a set of ‘best practices’ to be developed to guide successful EIA. The IAIA in collaboration with the United Kingdom’s Institute of Environmental Assessment, developed a set of “*Basic Principles*”⁸ and “*Operating Principles*”⁹ of EIA intended “to promote the effective practice of environmental impact assessment” (IAIA and IEA 1999: 1). The Basic Principles of an EIA are presented below (Table A.1). The Operating Principles of effective EIA practice are as follows:

The EIA process should be applied:

- As early as possible in decision making and throughout the life cycle of the proposed activity;
- To all development proposals that may cause potentially significant effects;
- To biophysical impacts and relevant socio-economic factors, including health, culture, gender, lifestyle, age, and cumulative effects consistent with the concept and principles of sustainable development;
- To provide for the involvement and input of communities and industries affected by a proposal, as well as the interested public;
- In accordance with internationally agreed measures and activities.

Table A.1 Basic principles of 'best practice' EIA

Purposive – informs decisions, environment is sustained.	Adaptive – process is flexible to various contexts without compromising integrity.
Rigorous – applies best and most appropriate science.	Participative – concerned public are involved in the process and decision.
Practical – results of process are usefully implemented in practice.	Interdisciplinary – process employs natural and social sciences and considers traditional knowledge.
Relevant – results of process improve planning and decision making.	Credible – process is objective and accountable.
Cost-effective – process does not exceed available resources.	Integrated – addresses interrelated social, economic and biophysical aspects.
Efficient – proceeds within the time and cost limits of stakeholders.	Transparent – process is easy to understand, accessible, and honest.
Focused – information for decision making concentrates on significant effects.	Systematic – process is comprehensive in scope and management of all potential impacts.

⁸ “*Basic Principles*” apply to all stages of EIA; they also apply to SEA.

⁹ “*Operating Principles*” describe how the basic Principles should be applied to the individual components of the EIA process.

APPENDIX B

PARTICIPANT INVITATION AND QUESTIONNAIRE



STUDY INFORMATION AND CONSENT FORM

You are invited to participate in a study entitled “Efficacy of environmental impact assessment in Saskatchewan’s forest resource sector.” You are being invited to participate based on you or your organization’s involvement/interest in forest management and/or environmental impact assessment. Your contact information was obtained from either your organization’s website or provided by other key informants affiliated with this study. Please read this form carefully and feel free to contact me with any questions you might have.

Researcher: Dr. Bram Noble, Department of Geography and Planning, University of Saskatchewan, Saskatoon, SK S7N 5C8, Tel: 306-966-1899, Email: b.noble@usask.ca.

Student: Risha-Jaide Rushton, MA Candidate, Department of Geography and Planning, University of Saskatchewan, Saskatoon, SK S7N 5C8, Email: rgr734@mail.usask.ca.

Purpose and Procedure: The overall purpose of this research is to examine the efficacy of EIA as a tool for environmental management. To achieve this, your expert views on the current state of EIA in Saskatchewan’s forest resource sector, and on the institutional factors necessary for effective EIA are being gathered. You are invited to assist in the study by participating in an interview to discuss your knowledge about and experience with the above issue.

The interview is designed to take approximately 45 minutes to one hour. The interview will be audio taped to facilitate data analysis.

Results of this study will contribute to a greater understanding of the institutional arrangements necessary to determine the efficacy of EIA practice and its contribution to environmental management, and identify opportunities to integrate effective EIA into forest management planning in Saskatchewan and advance the current knowledge and understanding of what constitutes effective EIA more broadly. The results of this study may be of benefit to your organization when planning, regulating, or assessing the implications of development in Saskatchewan forests.

Potential Risks: Your affiliation, but not your name, may be identified in research reports in order to lend credibility to the research. Given the limited number of participants, it may be possible to identify specific individuals based solely on organizational affiliation. However, you are being asked to provide your expert judgement and, as such, there is minimal personal risk. All data collected for this study will be reported in aggregate form only. Individual responses will not be revealed.

Potential Benefits: There are no direct benefits to you personally for participating in this study. The results will be used as part of a graduate MA thesis in the Department of Geography and Planning, and

shared with various provincial and federal agencies, industries, and academics in order to advance the current knowledge and understanding of what constitutes effective EIA more broadly.

Storage of Data: All information that you provide will be stored in locked cabinets in the office of the student's supervisor at the University of Saskatchewan for five years, after which tapes will be erased and documents and paper transcripts will be destroyed.

Confidentiality: The information you provide to this study will be used to produce reports for publication in scientific journals and may be presented at conferences and workshops/meetings; however, your personal identity will be kept confidential. You will be identified only by your position or professional affiliation (e.g. 'organization x'). However, because the participants for this study have been selected from a relatively small group, some of whom may be known to each other, it is possible that you may be identifiable to other people on the basis of the information you provide. In other words, only aggregate data will be presented in the research results, but confidentiality of your involvement as a participant in this study cannot be guaranteed.

If, within one month following completion of the interview, you have any second thoughts about your responses, you can contact the researcher or research student, who will immediately remove your information from the data set and provide you with an opportunity to review your responses to determine whether you would like to withdraw it from the research. After one month, it is likely that some form of research dissemination will already have occurred.

Right to Withdraw: Your participation is voluntary, and you may withdraw from the study for any reason, at any time, without penalty of any sort, up to one month following completion of the interview. After one month, it is likely that research dissemination will have already occurred. You may refuse to answer individual questions. If you withdraw from the research project, any information that you have contributed will be destroyed or returned at your request. Before and after your interview, you will be reminded of your right to withdraw.

Questions: If you have any questions concerning the study, please feel free to ask at any point. You are also free to contact the supervisor or research student at the numbers provided above if you have any questions at a later time. This study has been approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board. Any questions regarding your rights as a participant may be addressed to that committee through the Ethics Office (306-966-2084). Out of town participants may call collect. When the study is complete, all participants will receive a short report that outlines significant research findings.

Consent to Participate: I have read and understood the description provided above. I have been provided with an opportunity to ask questions and my questions have been answered satisfactorily. I consent to participate in the study described above; understanding that I may withdraw this consent at any time. *[Note: for telephone-based consent, the following statement will be used for the consent to participate and the researcher will sign: I read and explained this Consent Form to the participant before receiving the participant's consent, and the participant had knowledge of its contents and appeared to understand it.]*

Name of the participant

Date

Signature of the participant

Signature of research student



Thank you for agreeing to participate in this study.

Attached is a list of principles and parameters that attempt to capture effective environmental assessment in the context of sustainable forest management planning. These principles and parameters were derived from environmental assessment 'best practice' guidance and from sustainable forest management objectives.

I would ask that you review these principles and provide an assessment based on your knowledge of and/or experience with environmental assessment and/or forestry or forest management in Saskatchewan. You may not be an expert in all of these areas, but your opinion is important to this research.

Upon completion, please save your responses and submit the questionnaire by email to rgr734@mail.usask.ca, or print the questionnaire and mail or fax to:

Risha-Jaide Rushton
Department of Geography and Planning
117 Science Place, Kirk Hall
University of Saskatchewan
Saskatoon, SK S7N 5C8
Fax: 306-966-5680

I will follow-up with you on some of the issues identified in the questionnaire either over the telephone or in person. If you have any further questions, please do not hesitate to contact me at the addresses provided, or by phone at (306) 716-8698. You may also contact my supervisor, Dr. Bram Noble, at (306) 966-1899, or email b.noble@usask.ca.

Thank-you very much for your time and assistance. I look forward to hearing from you soon.

Risha-Jaide Rushton, M.A. Candidate
University of Saskatchewan

INSTRUCTIONS:

- For each statement, indicate to the right your assessment from (1) ‘strongly disagree’ to (9) ‘strongly agree’.

KEY TERMS:

CCFM = Cdn. Council of Forest Ministers
EIA = Environmental Impact Assessment
FSC = Forest Stewardship Council

FMA = Forest Management Area
FMP = Forest Management Plan
SFM = Sustainable Forest Management

PRINCIPLES AND PARAMETERS DEFINING THE ROLE OF EIA IN SFM									
1. EIA institutional and planning framework are conductive to SFM	Strongly Disagree		Mod. Disagree		Neutral		Mod. Agree		Strongly Agree
	1	2	3	4	5	6	7	8	9
a. There is a legal requirement to apply EIA to forestry plans and operations	<input type="checkbox"/>								
b. There is a requirement that forest plans and operating permits are routinely renewed/reassessed	<input type="checkbox"/>								
c. EIA is an integrative part of forest management planning (i.e. affects FMP development)	<input type="checkbox"/>								
d. EIA serves to integrate information across government agencies to support decision making about forestry proposals	<input type="checkbox"/>								
e. EIA serves to integrate information across disciplines (e.g. natural and social sciences) to support decision making about forestry proposals	<input type="checkbox"/>								
f. Results of the EIA affect implementation of the FMP (e.g. approval, terms, timing, etc.)	<input type="checkbox"/>								
g. There is a requirement that EIA terms and conditions are implemented in forestry planning/operations	<input type="checkbox"/>								
h. EIA facilitates coordination of forest planning/operations with other higher-level, parallel, <u>and</u> lower-level sustainability, land use, or forest planning/management actions	<input type="checkbox"/>								
i. Uncertainty (e.g., about impact predictions, models, or mitigation) is acknowledged in the EIA and considered in FMP implementation or operations	<input type="checkbox"/>								

2. Spatial and temporal scale of EIA support SFM practices	Strongly Disagree	Mod. Disagree		Neutral		Mod. Agree		Strongly Agree	
	1	2	3	4	5	6	7	8	9
a. EIA of forest plans/ activities considers broader regional and/or global ecological cycles	<input type="checkbox"/>								
b. EIA considers ecological effects beyond the scale of the FMA (e.g. landscape fragmentation)	<input type="checkbox"/>								
c. Monitoring and feedback required through EIA informs regional/ ecosystem-based forest management practices	<input type="checkbox"/>								
d. EIA accounts for/accommodates long-term forest land tenure and use rights	<input type="checkbox"/>								
e. EIA considers impacts beyond the life of the forest plan or activity, and ensures that adverse effects are not displaced onto future generations (e.g. beyond the 20-year FMP cycle)	<input type="checkbox"/>								
3. EIA facilitates maintenance or improvement of forest ecosystem health	Strongly Disagree	Mod. Disagree		Neutral		Mod. Agree		Strongly Agree	
	1	2	3	4	5	6	7	8	9
a. EIA process contributes to more informed decisions about potential forest ecosystem impacts and management solutions	<input type="checkbox"/>								
b. Ecological indicators and thresholds used in EIA and monitoring support those used in sustainable forest management practices	<input type="checkbox"/>								
c. Potentially adverse environmental effects of forest operations are identified early on, prior to plan implementation, and minimized or eliminated as a result of the EIA	<input type="checkbox"/>								
d. EIA contributes to the maintenance or enhancement of forest ecosystem condition and productivity (resilience and renewal) through prescribed management practices (e.g., results-based measures, best management practices, and/or set targets and indicators)	<input type="checkbox"/>								

4. EIA facilitates maintenance or improvement of human well-being	Strongly Disagree		Mod. Disagree		Neutral		Mod. Agree		Strongly Agree
	1	2	3	4	5	6	7	8	9
a. Economic benefits (e.g. yield and quality) of forest goods and services are maintained or enhanced as a result of the EIA	<input type="checkbox"/>								
b. Social and cultural benefits are maintained or enhanced as a result of the EIA	<input type="checkbox"/>								
c. Concerned stakeholders have the rights (legal provisions) to influence forest management outcomes and practices through the EIA process	<input type="checkbox"/>								
d. Concerned stakeholders have the means (e.g. access to information, participant funding) to influence forest management outcomes and practices through the EIA process	<input type="checkbox"/>								
e. There is evidence that stakeholder input to the EIA process (including traditional knowledge) is integrated into forest planning activities or operations.	<input type="checkbox"/>								
f. EIA ensures that Aboriginal and treaty rights are acknowledged and supported in forest management practices and operations	<input type="checkbox"/>								