THE RELATIONSHIP BETWEEN ENVIRONMENTAL AGREEMENTS AND ENVIRONMENTAL IMPACT ASSESSMENT FOLLOW-UP IN SASKATCHEWAN'S URANIUM INDUSTRY

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Abstract

Environmental Impact Assessment (EIA) is a planning process used to predict, assess, mitigate, and monitor the potential environmental and social impacts that may be associated with a proposed development project. Essential to the efficacy of EIA is follow-up - a post-decision process that attempts to understand EIA outcomes and provides feedback on project development and learning processes to improve environmental management practices. While considerable literature on follow-up related themes exists, the actual implementation and engagement of all stakeholders involved with follow-up in post-consent decision stages lacks or is not done well. That being said, in northern Canada, and in the mining sector in general, much of this post-decision activity is occurring under a new institutional arrangement: privatized community-industry Environmental Agreements and associated community-based monitoring programs. Based on a case study of follow-up in northern Saskatchewan's uranium mining industry, this thesis examines both the institutional development of EIA follow-up and the role and contribution of community-based Environmental Agreements to EIA follow-up and impact management practices. This thesis adopted a manuscript-style format; both utilized a combined methodology of document review and semi-structured interviews. The first manuscript focuses on the institutional development of follow-up in the northern Saskatchewan uranium mining industry, giving context to the current situation. Results demonstrate that follow-up in Saskatchewan's uranium industry has transformed and is characterized by four themes ranging from little or no follow-up to a new system that now includes a participatory yet privatized process based on privatized agreements. Results suggest that follow-up has evolved to a current emphasis on environmental management incorporating a 'community-centric' approach, recognition of socioeconomic issues in monitoring programs, and an increased community and

industry presence in follow-up and monitoring activities. The second manuscript examines the nature and scope of the northern Saskatchewan uranium industry's Environmental Agreement and its potential role in EIA follow-up. Results indicate that although privatized Environmental Agreements and community-led monitoring programs complement and supplement formal EIA follow-up processes and contribute to environmental management practices, they do not have the capacity to replace EIA follow-up. Results from this thesis advance current knowledge and understanding of the evolution of EIA follow-up and the current role and contribution of privatized agreements to post-decision follow-up and impact management practices.

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LIST OF ACRONYMNS

AWG: Athabasca Working Group

CEAA: Canadian Environmental Assessment Act

CNSC: Canadian Nuclear Safety Commission

CVMPP: Community Vitality Monitoring Partnership Process

DFO: Department of Fisheries and Oceans Canada

EARP: Environmental Assessment and Review Process

EIA: Environmental Impact Assessment

EIS: Environmental Impact Statement

EQC: Environmental Quality Committee

HRDA: Human Resource Development Agreement

HRDSC: Human Resources and Skills Development Canada

IBA: Impact Benefit Agreement

IMA: Impact Management Agreement

MVEIRB: Mackenzie Valley Environmental Impact Review Board

SA: Socioeconomic Agreement

TEK: Traditional Ecological Knowledge

CHAPTER 1

INTRODUCTION

1.1 Introduction

Environmental Impact Assessment (EIA) is a systematic process that proactively examines the consequences of projects and related development actions (Arts et al., 2001; Morrison-Saunders and Bailey, 1999). In Canada, EIA was formally introduced in 1973 through the Federal Environmental Assessment and Review Process (EARP) (Boyd, 2003; Gibson, 2002; Mitchell, 1995), which was replaced by the Canadian Environmental Assessment Act (CEAA) in 1995 and revised in 2003 (Noble and Bronson, 2005). EIA is not a mechanism for preventing development actions; rather it is a tool to ensure that decisions concerning development are made in the full knowledge of their environmental consequences (Bronson, 2005; Noble, 2006). The EIA process is comprised of several procedural elements, with its application varying at each jurisdictional level (for a comparative review see Wood, 2003; Munn 1979); however, a generic set of sequential steps does exist in EIA, commencing with project description and ending with implementation and follow-up (Table 1.1).

Follow-up, within the context of EIA, broadly refers to the monitoring and evaluation of the impacts of a project for the purposes of managing and communicating the environmental performance of that project (Marshall et al., 2005; Morrison-Saunders and Arts, 2004; Noble and Storey, 2005; Arts et al., 2001). Follow-up is a fundamental element of the EIA process as it is concerned with the results that occur once a consent decision for a project has been granted. Thus, follow-up is not only important when determining the outcomes of EIA but is essential to providing concrete evidence of environmental outcomes while allowing practitioners and stakeholders to move from a theoretical perspective on a proposal to understanding the real

effects once projects are implemented (Morrison-Saunders and Arts, 2004a; Ramos et al., 2004; Arts et al., 2001).

Table 1.1 – Generic EIA Process

Project description	Description of the proposed action, including its alternatives, and details sufficient for an assessment.	**Public consultation**
Screening	Determination of whether the action is subject to an EIA under the regulations or guidelines present, and if so what type or level of assessment is required.	
Scoping	Delineation of the key issues and the boundaries to be considered in the assessment, including the baseline conditions and scoping of alternatives.	
Impact prediction and evaluation	Prediction of environmental impacts and determination of impact significance.	
Impact management	Identification of impact management and mitigation strategies, and development of environmental management or protection plans.	
Review and decision	Technical and public review of Environmental Impact Statement (EIS) and related documents, and subsequent recommendation as to whether the proposed action should proceed and under what conditions.	
Implementation and follow-up	Implementation of project and associated management measures; continuous data collection to monitor compliance with conditions and regulations; monitoring the effectiveness of impact management measures and the accuracy of impact predictions.	

Source: Noble, 2006:13

Despite its importance, however, follow-up has not satisfactorily been implemented in practice (Ramos et. al., 2004; Noble and Macharia, 2004; Austin, 2000; Hui, 2000), and has yet to be recognized as an integral part of EIA (Marshall, 2001; Arts et al., 2001). In many countries follow-up is considered the weakest step in the EIA process (Glasson et. al., 2005). Follow-up in the post-consent decision stages of EIA is performed in only a minority of cases and has been described as the missing link between EIA and effective project management (Ramos et al., 2004; Arts et al. 2001). In those cases where follow-up has been done, it has taken place at the

level of the regulator and the proponent with much less attention to actively engaging communities and stakeholders in follow-up and monitoring activities (Morrison-Saunders and Arts, 2005). Partly the reason for this, according to Galbraith et al. (2007), is that the current EIA process does not adequately provide project-specific follow-up, consider benefits, or build trust and capacity among stakeholders. In Canada, this is particularly the case in the North, where follow-up and EIA itself have been given only limited attention (see Noble and Bronson, 2006; Mulvihill and Baker, 2001).

In recent years, however, the focus of EIA follow-up has shifted from that of monitoring and evaluating impact predictions towards linking up with environmental management and more recently communication about environmental performance with stakeholders and the community (Morrison-Saunders and Arts, 2005). Under conventional EIA systems, when follow-up is conducted, the typical parties involved are the regulator and the proponent, with follow-up based on a set of commitments made by the proponent in the environmental impact statement or based on the requirements of project approval set out by the regulator. The community is frequently involved only in tokenistic consultation practices. That being said, Arts et al. (2001) argue that recently there has there been a shift toward more actively engaging communities in the post-decision stage of EIA – that of follow-up and monitoring. In northern Canada, and in the mining sector in general, much of this post-decision engagement is occurring under a new institutional arrangement: privatized community-industry Environmental Agreements and associated community-based monitoring programs.

1.2 Environmental Agreements

Environmental Agreements are one of three types of agreements often negotiated between a community and industrial proponent as part of the EIA process. Whereas Socioeconomic

Agreements (SA) and Impact Benefit Agreements (IBAs) focus on broader economic development and the specific benefits that a community can expect from development in exchange for support and cooperation, Environmental Agreements are focused on project impact mitigation, monitoring, and follow-up (Galbraith et al., 2007). Environmental Agreements cover the entirety of a project, including: construction, operation, rehabilitation, and decommission, and seek to facilitate the participation of Aboriginal peoples, governments, and resource developers in the environmental management of projects in ways that do not occur under existing regulatory regimes (O'Faircheallaigh, 2007). In this way, such agreements have the potential to supplement existing EIA and regulatory processes and to involve key actors in creating institutional structures and management processes deliberately and specifically designed to facilitate indigenous involvement and to promote effective follow-up and adaptive management over the course of a project. The problem, however, is that notwithstanding the increasing popularity of Environmental Agreements, little is known about their nature and role - particularly in the post-decision stages of EIA follow-up. Aside from O'Faircheallaigh (2007), Galbraith et al. (2007), and O'Faircheallaigh and Corbett (2005) there has been little research on emerging Environmental Agreements, and even less concerning the nature of these agreements and their role in project and community impact management and follow-up.

1.3 Purpose

EIA follow-up is said to have evolved, and part of this evolution is the emergence of privatized agreements; however, little is known about the nature of this evolution and of the current role of privatized agreements in facilitating follow-up practice. As such, the overall purpose of this research is to advance current knowledge and understanding of the evolution of EIA follow-up

and the current role and contribution of privatized agreements to post-decision follow-up and impact management practices. In pursuit of this purpose, this thesis adopts a case study of Northern Saskatchewan's uranium mining industry and its associated Environmental Agreement. The specific objectives of this thesis are:

i. to examine the institutional development of EIA follow-up and its changing roles and stakes; and
ii. to examine the role and contribution of community-based Environmental Agreements to EIA follow-up and impact management practices.

1.4 Thesis structure

This thesis adopts a manuscript-style format. Following this introduction two manuscripts are presented, each corresponding to one of the above research objectives. The first manuscript, 'From Public Inquiry to Private Partnership: The Institutional Development and Evolution of Environmental Impact Assessment Follow-up in Saskatchewan's Uranium Mining Industry' focuses on the emergence and development of follow-up in Saskatchewan's uranium mining industry, giving context to the current situation. The second manuscript, 'The Contribution of Privatized Agreements to Environmental Impact Assessment Follow-up in Saskatchewan's Uranium Mining Industry', further explores the nature and scope of the Athabasca region Environmental Agreement and its potential role in EIA follow-up. The conclusion to the thesis reflects on the changing roles and stakes of EIA follow-up and the role and contributions that Environmental Agreements bring to the EIA follow-up process. References are self contained in each manuscript and each thesis chapter.

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CHAPTER 2

FROM PUBLIC INQUIRY TO PRIVATE PARTNERSHIP: THE INSTITUTIONAL DEVELOPMENT AND EVOLUTION OF ENVIRONMENTAL IMPACT ASSESSMENT FOLLOW-UP IN SASKATCHEWAN'S URANIUM MINING INDUSTRY

2.1 Introduction

Environmental Impact Assessment (EIA) follow-up is concerned with the results that occur once a consent decision for a project has been granted. The activities that comprise follow-up commonly range from monitoring and evaluating to managing and communicating the environmental outcomes that occur from a project. As the principle goals of follow-up are to improve project implementation with respect to environmental outcomes and to provide feedback on the EIA process, follow-up is a critical component of environmental management; it "provides concrete evidence of environmental outcomes" (Morrison-Saunders, 2004: 3). In other words, follow-up not only provides information about the consequences of an activity as they occur, but it provides the responsible parties with the information needed to take appropriate measures to mitigate or prevent adverse effects on the environment (Ramos et al., 2004). By incorporating such feedback into the EIA process, follow-up provides for better project management, allows learning from experience to occur, and informs proponents, regulators, and stakeholders through communication about a project's environmental performance (Marshall et al., 2005; Noble and Storey, 2005; Morrison-Saunders and Arts, 2004; Morrison-Saunders et al., 2003). In this regard, follow-up is the link between project development and environmental management (Arts et al., 2001); it enables "…practitioners and stakeholders to move from a

mainly theoretical perspective on a proposal to [an] actual understanding and knowing the real situation once projects are implemented" (Morrison-Saunders, 2004: 3).

In today's heavily regulated industrial environment, follow-up in EIA is no longer an option but a sound precaution and proactive measure (Marshall, 2005). As such, the roles and stakes of follow-up have changed considerably. In the past, follow-up primarily concentrated on verifying the accuracy of biophysical impact predictions and monitoring biophysical change in the local project environment, and occurred primarily within the context of the proponent and enforced by the regulator (Morrison-Saunders and Arts, 2005). Emerging literature and discussions amongst the international EIA community, however, now suggest that the focus of follow-up is shifting from that of solely monitoring and evaluating biophysical impact predictions towards linking up with environmental management, and more recently communicating about environmental performance with stakeholders and the community (e.g. Lawe et al., 2005; Marshall, 2005; Morrison-Saunders and Arts, 2005; Noble and Storey, 2005). In doing so, greater importance and interest is being placed on actively engaging community stakeholders and the affected publics in EIA follow-up programs directly.

That said, and notwithstanding the proliferation of international literature and case studies dedicated to post-decision follow-up activities, little empirical evidence exists to support the changing roles and scope of EIA follow-up. This is particularly the case in northern Canada, where follow-up and EIA itself have been given only limited attention (see Noble and Bronson, 2006; Mulvihill and Baker, 2001). As Canada is about to embark on a number of major mineral and energy resource development projects in its northern regions, understanding how follow-up has evolved and the current roles and stakes in follow-up and impact management processes is essential to ensuring meaningful project planning, implementation and feedback. While

communication and cooperative environmental decision-making are now recognized as important elements in the Canadian northern development context, effective implementation and integration of these concepts continue to challenge EIA - particularly at the follow-up stage (see Noble, 2006; Noble and Bronson, 2006; Veiga, 2001).

Based on a case study of follow-up in northern Saskatchewan's uranium mining industry, this paper examines the institutional development of EIA follow-up and its changing roles and stakes. The current state of follow-up in Saskatchewan's uranium industry is a mixed model of regulator-driven follow-up combined with industry-led initiatives and private industry-community follow-up agreements and programs. In this paper, influential developments in the emergence and evolution of follow-up in the uranium industry since the 1930s are examined, thus providing a better understanding of current regulatory procedures, processes, and follow-up practices and agreements. Emerging follow-up trends, including the roles and relationships of communities and stakeholders, are also examined. In doing so, this paper attempts to contribute to the current knowledge and understanding of the evolution and present state of follow-up programs and practices.

The paper begins with a brief discussion of follow-up in the EIA process, followed by an overview of the uranium industry. Attention then turns to the nature and evolution of follow-up in the industry. The paper concludes with observations concerning the discontinuity and future of follow-up systems, and the implications of increasing privatized follow-up programs.

2.2 Follow-up Roles and Stakes

Prior to 2000, follow-up was not extensively examined in the academic literature or carried out in practice. Recently, however, in recognition of the importance of follow-up in ensuring environmental protection and in fostering the sustainable development of the environment, the

subject has been the center of several special sessions at the annual meeting of the International Association for Impact Assessment, and the focus of a 2005 special issue of *Impact Assessment and Project Appraisal.* In the Canadian context, the Canadian Environmental Assessment Agency's Research and Development program priorities has included the need to improve the effectiveness of EIA follow-up since the program's inception eight years ago, and follow-up is now a requirement under the *Canadian Environmental Assessment Act*.

Broadly speaking, follow-up can be defined as the monitoring and evaluation of the impacts of a project or plan that has been subject to EIA, for management of, and communication about, the environmental performance of that project or plan (Marshall et al., 2005; Morrison-Saunders and Arts, 2004). Follow-up is often utilized as an umbrella term for the various activities undertaken during the post-decision stage of a project and is comprised of four main elements (Marshall et al., 2005; Morrison-Saunders and Arts, 2004; Arts et al., 2001), namely:

> *Monitoring:* the collection of data and comparison with standards, predictions or expectations. It includes baseline monitoring, monitoring of compliance with, and effects of, the consent decision, and area-wide monitoring.
>
> *Evaluation*: the appraisal of the conformance with standards, predictions or expectations as well as the environmental performance of the activity. It is utilized in planning and policy for the generic process of gathering, structuring, analysing, and appraising information. Evaluation explicitly involves value-judgements and often relates to subjective policy-orientated judgements opposed to purely scientific and technical analysis.

Management: making decisions and taking appropriate actions in response to issues arising from monitoring and evaluation activities. Ongoing management decisions may be made by both proponents (e.g., responding to unexpected impacts) and by EIA regulators (e.g., reviewing consent conditions and management requirements) alike.

Communication: informing the stakeholders and the general public about the results of EIA follow-up. Both proponents and EIA regulators may engage in communication programmes. Some follow-up programmes extend beyond monitoring to include also direct stakeholder participation in the monitoring, evaluation, and management process. Such activities may be facilitated through follow-up under Environmental Agreements.

Follow-up is fundamental to the entire EIA process. Although pre-decision analysis is typically the focus of EIA, it alone is not sufficient for sound environmental decision-making (Noble and Macharia, 2004). According to Morrison-Saunders and Arts (2005), an underlying purpose of EIA follow-up is to ensure that project management occurred and occurs effectively with minimum adverse or residual environmental effects. In other words, follow-up encourages integration of environmental perspectives into developmental programmes, it promotes the systematic implementation of mitigation, and it triggers environmental risk responses put forth by development activities (Marshall, 2005). In addition, Marshall (2005) notes that successful development is increasingly being viewed in terms of its final result - its operational environmental performance and the actual environmental impacts that have taken place.

Three principle parties or stakeholders are generally involved in follow-up activities (see Marshall et al., 2005; Arts et al., 2001), namely the:

Proponent - private companies or governmental organizations that develop a project, they are often expected to perform most follow-up activities

EIA Regulator - competent authorities or a government agency responsible for administrating or implementing EIA systems; and

Community - the body of public or other independent persons directly affected by a proposal or interested persons. The extent of public involvement may range from direct community involvement in follow-up programs to simply being kept informed of follow-up activities and outcomes.

However, each application of follow-up is undertaken for a particular purpose and the associated outcomes of a follow-up program may provide different benefits to each of the parties involved (see Marshall, 2005). For example, benefits to the proponents may include reduced liability concerning unanticipated environmental outcomes and enhancing a community's acceptance of a development project by providing a 'greener' corporate image. For communities, follow-up may provide an opportunity to learn about a project and the local environment and reduce feelings of uncertainty concerning a project's environmental effects. For regulators, follow-up is a means to ensure that projects are performing as intended and that regulatory standards and requirements are being met.

Emerging trends in the academic literature point toward a shift or change in the theory, nature and role of EIA follow-up (Figure 2.1). Morrison-Saunders and Arts (2005) maintain that

the direction of follow-up is towards an increasing role in environmental management, an increase in overall involvement and communication amongst all stakeholders, and a process that is more community-focussed. This is in sharp contrast to the type of follow-up that persisted throughout the 1970s and into the 1990s, where attention was largely focused on verifying biophysical impact predictions and on biophysical effects monitoring, with the primary parties involved being the project proponent and the regulator.

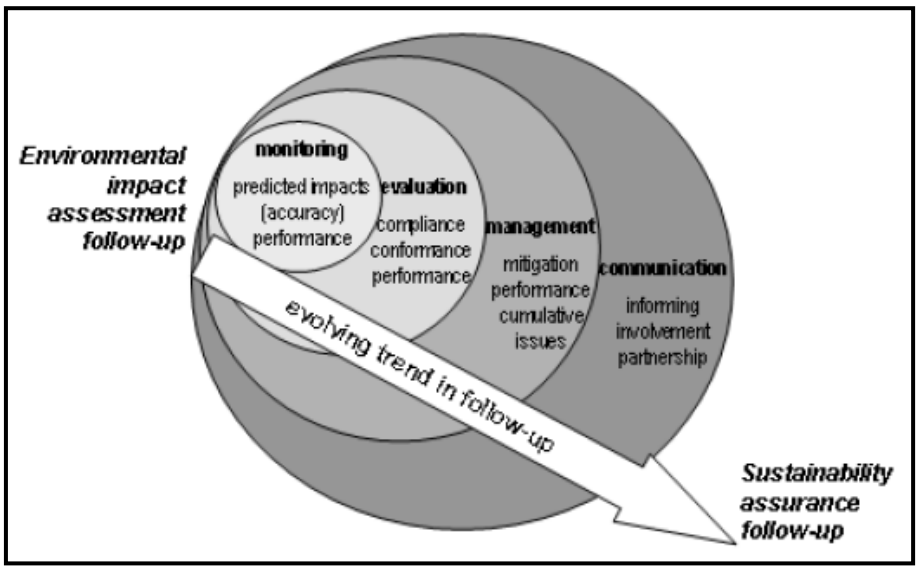

Figure 2.1 – Evolving trends in EIA Follow-up
Source: Morrison-Saunders and Arts, 2005: 173

Socio-economic issues now have a much larger presence in follow-up monitoring programs, focusing on areas such as employment, education, and potential revenue-sharing from development projects (Storey and Noble, 2005). Attention has also turned more toward impact management as opposed to verifying impact predictions (Noble and Storey, 2005). Parsons and Barsi (2001) further suggest that industry is now playing more of a leading role in follow-up activities, while regulators are regarded as taking a step back. According to Veiga et al. (2001:

191), this is simply a reflection of the current reality of doing business in communities, and proponents "…must now pursue their interests in a way that also promotes those of the local communities in regions where they are operating".

2.3 Case Study: Saskatchewan's Uranium Mining Industry

The Athabasca Basin of northern Saskatchewan (Figure 2.2) has been the focus of the province's uranium mining industry since pitchblende, an oxide of uranium, was discovered on the northern shore of Lake Athabasca in the 1930s (Wiles et al., 1999). Occupying nearly one third of the surface area of the Saskatchewan Shield (100,000 square kilometres), the northern Athabasca region is one of the world's most important sources of uranium, holding many high-grade uranium deposits and accounting for approximately 25% of world's total uranium output (WNA, 2008; GOS, 2007; Card et al., 2006). Over the last three decades in particular uranium has been an important Canadian energy resource, used in nuclear power reactors, providing 15% of Canada's electricity supply (SMA, 2007). As the demand for uranium continues to increase internationally, production from northern Saskatchewan uranium mines continues to rise.

The province's uranium mines are primarily owned and operated by Cameco Corporation and Areva Resources Canada, with McLean Lake, Key Lake/ McArthur River, and Rabbit Lake being the three main uranium mines currently operating in northern Saskatchewan. In 2007, a total of 9,465 tonnes of uranium (24.6 million pounds of U_3O_8) was produced by Saskatchewan mines via underground, open pit, and stockpile mining (Table 2.1).

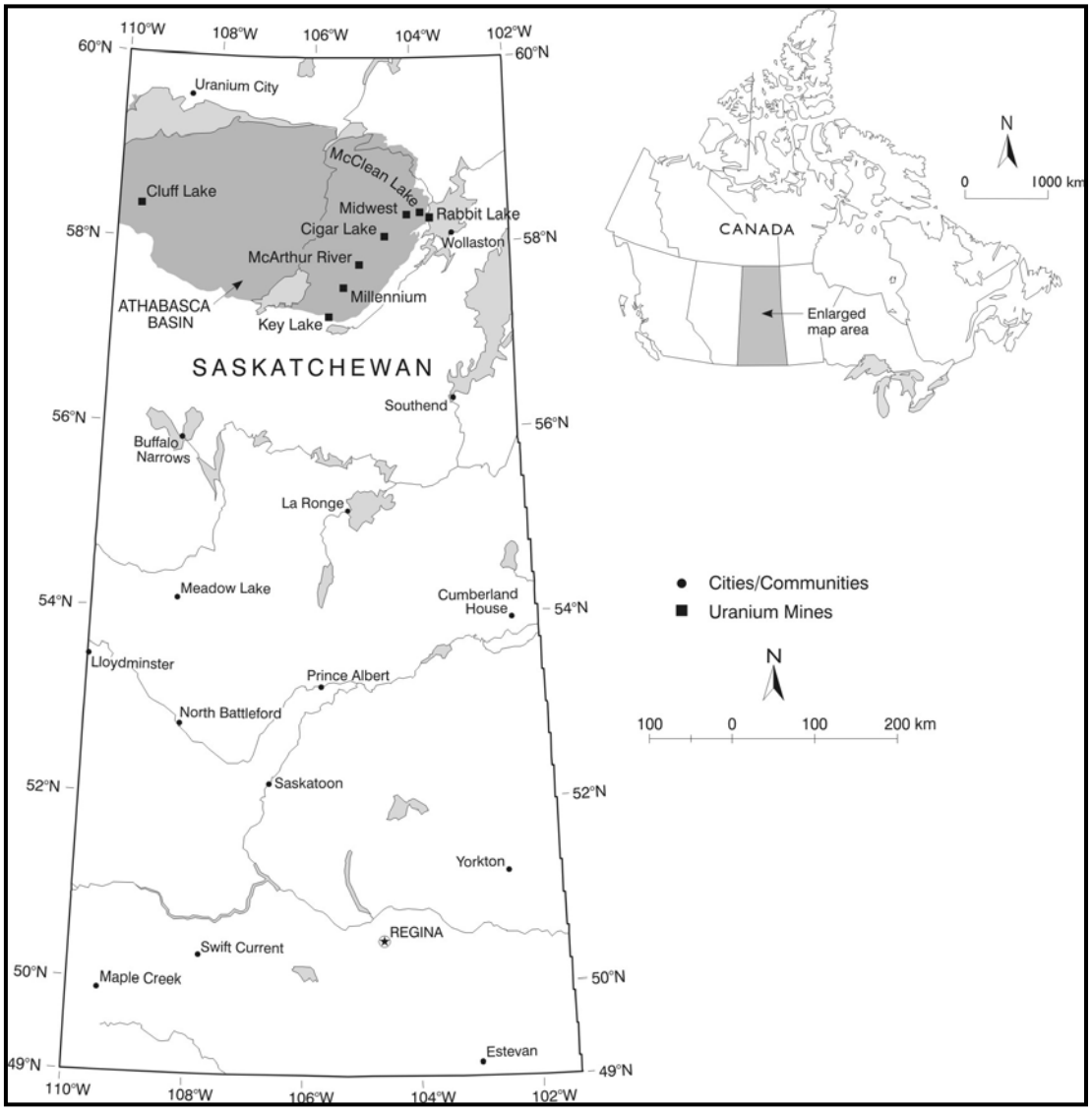

Figure 2.2 – Main Uranium Mining Operations in the Athabasca Basin
Source: Map produced by Keith Bigelow, University of Saskatchewan

Table 2.1 – Northern Saskatchewan Uranium Production for 2007

Operating Mine	Tonnes of Uranium	Million Pounds of U_3O_8
McLean Lake	734	1.9
Key Lake/McArthur River	7,193	18.7
Rabbit Lake	1,538	4.0
TOTAL	**9,465**	**24.6**

Source: Areva, 2008; Cameco, 2008; SMA, 2007a.

A proponent in the uranium mining industry in Saskatchewan must meet regulatory requirements and permitting processes as set forth by both federal and provincial governments. Federally, the Canadian Nuclear Safety Commission (CNSC) regulates the uranium industry with federal regulatory inputs from Environment Canada, the Department of Fisheries and Oceans, Human Resources and Skills Development Canada (HRDSC), and Transport Canada. Provincially, the Ministry of Environment is the primary regulatory authority, with input from the Ministry of Advanced Education, Employment and Labour, Ministry of Energy and Resources, and the Ministry of First Nations and Métis Relations. A licence from the CNSC is required by any proponent prior to any mining related activity, ranging from site preparation to decommissioning and from transporting to storing nuclear substances (CNSC, 2007). Prior to any licence being granted, an EIA must be carried out. EIA for site preparation, development, and decommissioning is under the jurisdiction of both the *Canadian Environmental Assessment Act* and the Saskatchewan *Environmental Assessment Act*. If a positive decision is reached regarding the application, the various licences are then issued for the proposed activity (Figure 2.3) (CNSC, 2007).

A total of 38 impact assessments have been completed in the Athabasca region to date, the first of which was the Cluff Lake Board of Inquiry in the late 1970s. Since the early exploration activities of the 1930s, however, regulatory procedures, frameworks, priorities and practices for uranium development and impact assessment have undergone a number of evolutionary changes – changes that have led to the development and nature of the industry's current impact management and follow-up program, and changes that have heavily influenced follow-up roles and stakes. In the sections that follow, this evolution of the uranium industry is discussed and

the main influences on the development of follow-up and on its changing roles and stakes are explored.

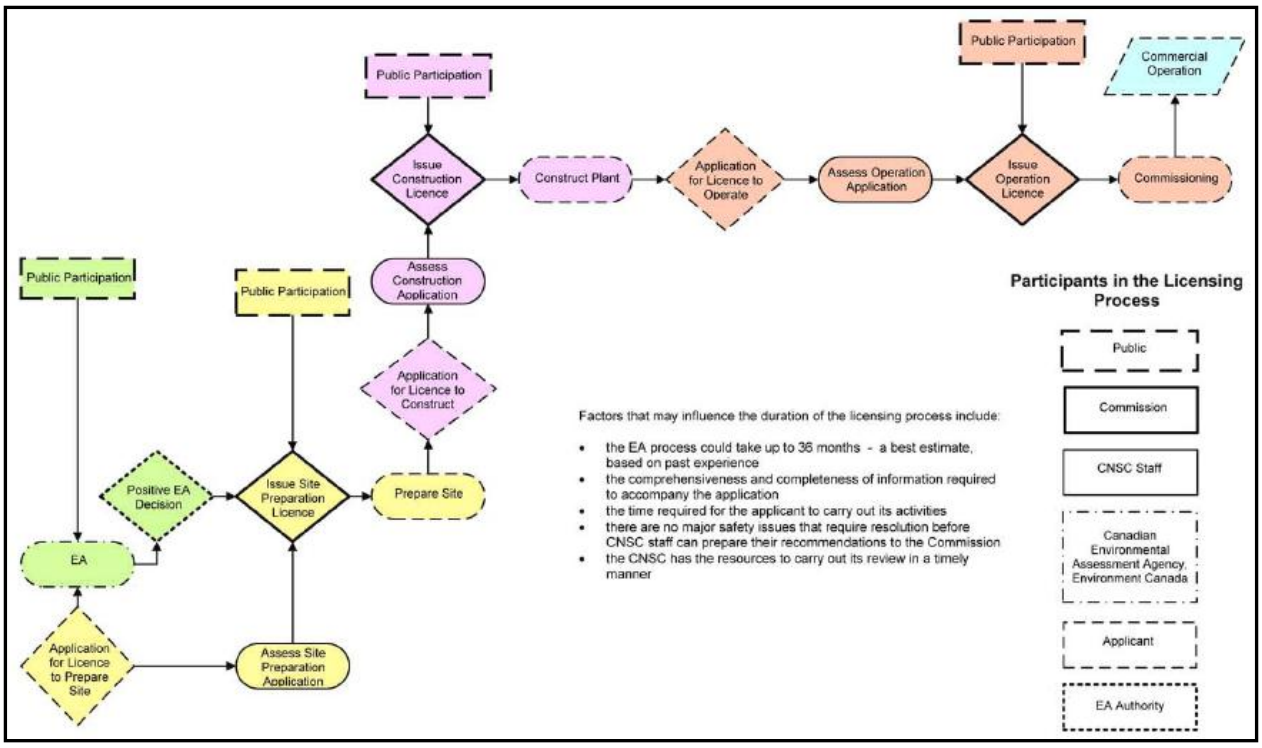

Figure 2.3 – Licensing Process for a New Uranium Mine or Mill in Canada (Decommissioning Phase not shown)
Source: CNSC, 2007: 15

2.3.1 Methods

Two primary methods were used to carry out this research, namely document reviews and semi-structured interviews. Document review broadly refers to the various procedures involved in analyzing and interpreting data generated from the examination of documents and records relevant to a particular study (Schwandt, 2007). When applied, document reviews are an unintrusive form of research with minimal, if any, impact on the research setting (Babbie, 2002). The document review method has several strengths including a straightforward approach where a researcher accesses the appropriate documents and applies or categorizes the information according to a predetermined conceptual framework. The process is useful for studying a wide

variety of communications; it allows a researcher to study processes over a time period, and given the static nature of the research setting results may be verified (or not) by other investigators (Babbie, 2002; Marshall and Rossman, 1999; Babbie 1992). For the current study, documents were collected from October 2007 to June 2008 and included uranium mining reports; Cameco records, articles, and files (e.g. Northern Saskatchewan's Environmental Quality Committee Report to Communities, 2002-2003; Northern Saskatchewan Community Vitality Monitoring Annual Report, 2003); the Environmental Agreement established between Cameco, Areva, and the Athabasca Working Group (AWG); AWG Annual Reports; and research on environmental assessment documents that have been implemented to date. These documents were utilized to identify and characterize the various regulatory requirements for impact assessment and industry management, and hence follow-up, and to examine the various roles and stakes involved. The chronology of industry development reported here draws largely on the work of Parsons and Barsi (2001; 2000).

Document reviews were supplemented and verified with semi-structured interviews in order to fill any gaps in understanding of the regulatory framework and follow-up practices that document reviews were unable to bridge effectively (see Creswell 2003). Interviews also allowed for an opportunity to explore where potential differences of opinion and experiences may exist, and where there is general consensus on the issues (see Dunn, 2000). The semi-structured approach facilitated a more natural conversation and accommodated change in the presentation of questions to ensure specific themes could be fully explored and developed (Flowerdew and Martin, 2005; Dunn, 2000). Concomitantly, it allowed for structure in the organization and categorization of information based on a predetermined framework of evaluation. Interviews were conducted over the course of six months, from February to August

2008. Twelve interviews were conducted with various uranium mining representatives from Cameco and Areva, as well as federal and provincial government regulators, and environmental consultants. At a preliminary meeting with Cameco Corporation's Environmental Affairs group, it was established that the initial identification of industry participants would be done with the assistance of the Cameco Corporation. Remaining interviewees were identified using a purposeful sampling procedure by seeking out industry representatives, regulators, and environmental consultants in positions who were likely to have in-depth knowledge of EIA and the uranium industry, and then using a 'snowballing' technique (see Mason, 2002; Bryman, 2001).

Interviews were requested by email and telephone invitation wherein a brief research summary was provided. Interviews ranged from half an hour to two hours in duration, aiming to gather qualitative data to supplement the information obtained from documents and to provide knowledge from an industry, government, and environmental consultants' perspective. Interviews also provided an opportunity for more in-depth inquiry to specific aspects of follow-up, including how data are being used in management and follow-up practices. Ten of the interviews were carried out in-person, whereas two were telephone-based due to scheduling difficulty. Interviews conducted in person took place at the participant's place of business and were scheduled according to the interviewee's availability. It was apparent that an adequate number of industry representatives, regulators, and other industry players had been contacted and interviewed when participant names, themes and comments began to repeat. Question areas included how EIA follow-up roles and responsibilities had changed over time; whether follow-up activity had increased in recent years and, if so, in what capacity; and whether a change in the balance of roles between industry and government had occurred.

With consent, all interviews were audio taped and then transcribed. Interviews were analyzed with the assistance of Atlas.ti © software whereby each interview was classified into themes and then assigned different codes to interpret the data. By coding the data, interpretation of information and linking relationships or concepts together was done effectively. In addition, Atlas.ti made the retrieval and the overall organization of data a much more efficient process.

2.4 Results and Discussion

The current system and evolution of follow-up roles and stakes in Saskatchewan's uranium industry was influenced by a number of significant developments and shifts in the regulatory, community, and industry environment (Table 2.2). These shifts, or eras of development, can be categorized into four influential periods. The first is a period of initial discovery, marked by the development of the uranium industry and its associated regulatory framework; the second is framed around the emergence of public inquiries as an underlying component of impact assessment; the third era is characterized by the development of a 'tripartite framework'; and the fourth and current era is one of emerging private partnerships between the industry and communities. This classification is not to suggest a clear and natural evolution of EIA follow-up to its present form. Rather, to adopt a characterization of economic geography developed by Trevor Barnes (1997), the evolution is perhaps best described as discontinuity: the displacement of one body of knowledge giving way to another; the discontinuity of unnatural breaks; and the disruption of a previously established order.

In the sections that follow, the evolution of the industry and a number of influential developments that shaped the nature and current form of EIA follow-up in Saskatchewan's uranium industry are discussed. So as to ensure the confidentiality of interview participants, only aggregate or summary results of the interviews are presented. In other cases, the participants'

general affiliation (e.g. industry, regulator, consultant) is identified but the names of specific companies or government units are withheld.

Table 2.2 - Evolution of the Saskatchewan Uranium Industry and Environmental Impact Assessment Follow-up

Era	Industry Development	Follow-up Framework
Period of Initial Discovery	▪ Uranium discovered on the north shore of Lake Athabasca (1934-1935) ▪ Eldorado Mining and Refining Limited as a Crown Corporation (1943) ▪ Atomic Energy Control Act is passed and the Atomic Energy Control Board established (1946) ▪ Uranium is discovered at Rabbit Lake (1968)	▪ Pre-formal EIA in Canada, characterized by a newly developing regulatory process alongside industry development. ▪ No system or provisions for follow-up and monitoring activities of the effects of uranium exploration.
Era of Public Inquiries	▪ Uranium deposits discovered at Cluff Lake (1971) ▪ Saskatchewan Mining Development Corporation created as a provincial Crown Corporation to govern all mining in the province (1974) ▪ Uranium is discovered at Key Lake (1975) ▪ Environmental Assessment and Safety Report submitted to Saskatchewan government for the development of uranium operations near Cluff Lake (1976) ▪ Cluff Lake public inquiry process explores the probable environmental, health, safety, social, and economic effects of Saskatchewan uranium mining industry (1977) ▪ Key Lake Board of Inquiry is established to review and make recommendation on the Key Lake project (1979) ▪ Environmental assessment and regulatory program formally enacted in Saskatchewan (1980) ▪ Surface leases introduced and implemented to adopt cooperative practices in enhancing a positive economy in northern communities (early to mid-1980s) ▪ Key Lake begins production (1982) ▪ Human Resource Development Agreements (HRDA) introduced into Surface leases to maximize recruitment, hiring, training in northern Saskatchewan (1986) ▪ Uranium discoveries are made and development projects (e.g. Rabbit Lake Extension, Cigar Lake, McArthur River) proposed by private mining companies (1987) ▪ Cameco Corporation is formed (1988) ▪ Joint Federal-Provincial Environmental Impact Assessment Panel on Uranium Mining appointed to examine the environmental, health, and socio-economic effects of proposed uranium developments (1991)	▪ Formal EIA processes are introduced at the federal and provincial level ▪ Follow-up regulatory requirements are introduced, but monitoring is focused predominantly on biophysical effects monitoring by industry and regulated by government. ▪ Increasing awareness of the social, and economic issues of northern communities affected by uranium mining. ▪ Public inquiries emerge as a foundation of the impact assessment regulatory process, but social and economic concerns remain largely absent from industry and government follow-up and monitoring activities and requirements ▪ The beginning of a mixed model of roles and stakes in uranium development that would transform responsibilities and future relationships in development impact management and follow-up programs.

Establishment of a Tripartite System	• Athabasca Working Group is created by Cameco in response to recommendations of the Joint Panel, representing the seven northern Athabascan communities and two uranium companies (1993) • Three Environmental Quality Committees (EQCs) are established in response to Joint Panel recommendations by the provincial government, and designed to address the need for northern participation in uranium mining regulation (1995) • Community Vitality Monitoring Partnership Process (CVMPP) established in response to recommendations from the Joint Panel and revised surface leases (1998)	▪ A tripartite framework of government, industry, and communities in impact management and follow-up programs emerge. ▪ Shifting emphasis toward community involvement and consideration of social issues in uranium mining regulatory processes, including follow-up. ▪ Role of industry becomes more prominent in follow-up due to increased positions on environmental leadership and corporate-social responsibility.
Development of Private Partnerships	• A comprehensive impact management agreement is signed between Cameco, Areva, and the AWG focusing on three major areas: employment; training and business development; benefit sharing; and environmental protection (1999) • A community-based environmental monitoring program is established under the AWG to monitor 'off-site' uranium mining impacts (2000)	▪ A private community-industry agreement adds a parallel follow-up and impact management framework to the existing public regulatory process ▪ Communities become actively engaged in industry environmental monitoring and reporting.

Sources: Compiled based on interview participants; Cameco, 2007; GOS, 2007; Kneen, 2006; Parsons and Barsi, 2001; 2000; Goulet, 1997; JFPP, 1992.

2.4.1 Period of Initial Discovery

In 1935, uranium deposits were discovered at Goldfields in the Beaverlodge area, north of Lake Athabasca. Due to the onset of World War II, the Canadian government imposed a ban on private exploration for uranium and created Eldorado Mining and Refining Limited[1] to control all uranium-related exploration activities (ES, 2005; Parsons and Barsi, 2000). Extensive prospecting in the Beaverlodge area began in 1944, and eight years later Uranium City was established and production mining began in 1953 (Kneen, 2006; Parsons and Barsi, 2001). Three separate mining facilities and 16 ore bodies were developed in the Uranium City area. The first

[1] In 1968, Eldorado Mining and Refining Limited changed its name to Eldorado Nuclear Limited.

major uranium deposit in the Athabasca region was discovered at Rabbit Lake in 1968 – now the province's oldest operating uranium mining and milling facility.

The Atomic Energy Control Act was passed in the House of Commons to regulate all operations of the industry, and the Atomic Energy Control Board was set-up to administer the Act in 1946 (Kneen, 2006; Parsons and Barsi, 2001); however, uranium discoveries, milling, and mining were new to both governments and there was no structured impact assessment or regulatory process that existed in northern Saskatchewan or in Canada prior to the 1970s. Proactive environmental management in the industry, including environmental assessment, was non-existent during this period of initial discovery. According to Parsons and Barsi (2001), "limited attention was paid to workers' occupational health and safety, less to environmental protection, and no attention at all to reclamation, communities, or socioeconomic performance". Environmental regulations for uranium mining emerged alongside the development of the industry itself, and in the years that would follow the provincial government attempted to address the environmental aspects of uranium mining, as well as the economic and social disparities of northern Saskatchewan residents and communities through greater involvement in mining regulation (Parsons and Barsi, 2001; JFPP, 1992). At both the federal and provincial level, the evolution and development of an environmental assessment and regulatory process for the uranium industry began to emerge.

2.4.2 Era of Public Inquiries

In 1971, high grade uranium deposits were discovered in the Carswell formation near Cluff Lake in the Athabasca Basin. Five years later, an Environmental Assessment and Safety Report for the development of a uranium mining and milling operation near Cluff Lake was submitted to the

Government of Saskatchewan by Amok Limited (Goulet, 1997; JFPP, 1992). Shortly after, a public inquiry, the Bayda Commission Cluff lake Board of Inquiry, was commissioned to review the proposed development and to assess the potential environmental, health, safety, social, and economic effects of the overall future expansion of uranium development in Saskatchewan.

The Bayda Inquiry began in April 1977, involved formal hearings lasting 67 days, and included approximately 138 witnesses (Goulet, 1997). Recommendations from the inquiry included socio-economic improvements to current northern employment and business opportunities associated with the Cluff Lake project, and a recommendation that the province develop a structure that would ensure future uranium mining generated revenues were more directly shared with northern people. The Cluff Lake project was approved, but was subject to increased regulation and recommendations to clarify federal and provincial jurisdiction over the environment (Parsons and Barsi, 2001). Cluff Lake commenced production in 1980. The Bayda Inquiry was a significant event in the history in Saskatchewan's uranium mining industry; it would extend the scope of future mine assessments to include, in addition to biological and other environmental considerations (Parsons and Parsi, 2001), such issues as worker health and safety; social, economic, community and northern benefits; disposal of nuclear wastes; and moral and ethical issues about northern uranium mining.

As the Cluff Lake project was unfolding, major uranium deposits were also detected in the nearby Key Lake area in 1975. The Environmental Impact Statement (EIS) for the development of the Key Lake mine and mill was submitted to the provincial government for approval in 1979. Similar to the Cluff Lake development, the Government of Saskatchewan recommended an inquiry to review and make recommendations on the Key Lake project. All activities associated with the Key Lake Board of Inquiry occurred in the northern communities of the Athabasca

region, with the exception of an additional 55 information centres established throughout the province (Goulet, 1997). Emphasis was again placed on the need for government and industry to ensure training, employment, and business opportunities for the northern population; additionally, the potential impact of the Key Lake proposal on northern communities and people was also addressed (Goulet, 1997; JFPP, 1992). Like Cluff Lake, the Key Lake project was approved. Production began in 1982.

According to Goulet (1997), recommendations from both inquiries supported provincial government initiatives to ensure northern residents would benefit in a meaningful way from uranium development. For example, tools such as "surface leases" were introduced and implemented; these leases were intended to adopt cooperative practices in enhancing a positive economy in northern communities (Parsons and Barsi, 2001). In addition, significant requirements to increase northern employment and participation in uranium mining activities were introduced. An additional three major public inquiries concerning uranium development in the Athabasca region were commissioned in the years that followed.

2.4.2.1 Emergence of a regulatory-based follow-up framework

Throughout the 1970s the provincial government became increasingly involved in the regulation of mining activities, with an objective to address the increasing concern regarding social and economic disparities of northern Saskatchewan communities and First Nations groups that were long-standing but not addressed (Parsons and Barsi, 2001; Goulet, 1997). The Saskatchewan Mining Development Corporation was created as a provincial crown corporation in 1974 to govern all mining in the province (e.g. exploring, developing, storing, and selling) (ES, 2005) and to meet the province's mandate of improving the social and economic conditions in the north (Parsons and Barsi, 2001).

It was also during this time, in 1973, that Canada formally introduced the EIA process, the Federal Environmental Assessment and Review Process, giving rise to the development of follow-up and monitoring programs. There was general consensus amongst interview participants that once the EIA process was implemented, the importance of follow-up, its role, and how it was to be conducted in uranium development projects was soon recognized. One interviewee from industry commented that the specific legislative changes that were brought forth from the 1970s and implemented in the 1980s produced a new generation of mining operations and standards, thus developing and maturing follow-up procedures. Another participant, also from industry, identified Uranium City as an example of the changes in follow-up priorities and roles during this period; in the 1960s industry did not conduct routine monitoring of sites, but years later, following the emergence of public inquiries and introduction of the EIA process, reclamation and environmental programs became commonplace at Uranium City.

In the early 1980s, the Saskatchewan government introduced its own comprehensive environmental assessment and regulatory/enforcement program to specifically address the environmental and human health concerns associated with uranium development. This entailed the development and implementation of laws, regulations, and policies to provide clear and reasonable boundary conditions for uranium proponents. In addition, the implementation of a formal provincial environmental assessment review process, *The Saskatchewan Environmental Assessment Act*, resulted in a further increase in community consultation and involvement in northern development (Parsons and Barsi, 2001). Under this new provincial system, proponents were required to prepare an EIS detailing their assessment and management plans for all aspects

of a project, including decommission and abandonment, and to provide a specific outline to be used for mitigating any environmental disturbances – ecological, social, or economic.

In 1986, the Human Resource Development Agreement (HRDA) was introduced into surface leases. A co-operative approach between mining companies and government, HRDAs were designed to maximize recruitment, hiring, training, and advancement of northern people at all skill levels in northern Saskatchewan mining operations (Parsons and Barsi, 2001; Goulet, 1997). This approach reflected a cooperative planning and training process, providing long-term commitments by government, industry, and community to increase northern employment levels (Parsons and Barsi, 2001).

In 1988, the federal and provincial governments merged and privatized their respective uranium mining companies, Eldorado Resources Limited and the Saskatchewan Mining Development Corporation, to form the Cameco Corporation. This merger led to a new period of private-sector uranium mine development and operation (Parsons and Barsi, 2001), which subsequently led to greater regulation by the provincial government with a smaller federal role in the mining process (Parsons and Barsi, 2001). Overall, the regulatory framework of the 1970s and 1980s reflects an increase in awareness of northern environmental, social, and economic issues; a reflection of the use of public inquiries as the primary means to identify and assess these issues. Concomitantly, with the privatization of Eldorado Resources and the Saskatchewan Mining Development Corporation, industry's role in uranium mining began to increase; however, industry was expected to share the social and environmental priorities of the provincial government (Goulet, 1997).

Although community and public views were largely considered, evaluated, and incorporated into the regulatory process during this era, such issues had not yet been carried

forward to the post-decision stages of follow-up and evaluation (Noble and Storey, 2005). In practice, the follow-up system that emerged in the 1970s and 1980s with the introduction of the Canadian federal and Saskatchewan provincial environmental assessment requirements and various industry regulations and agreements was primarily based on compliance monitoring and focused heavily on biophysical effects monitoring in the local project environment – carried out by industry and regulated by government. Changing regulatory roles and responsibilities, however, alongside increased public involvement and demands on and expectations of the industry to deliver benefits to northern communities, marked the beginning of a mixed model of roles and stakes in uranium development and subsequent follow-up and monitoring programs.

2.4.3 Establishment of a Tripartite System

In 1987, after years of exploration and operations in the Rabbit Lake area, additional radioactive occurrences were detected and several uranium development opportunities were identified by private companies (i.e. Cameco and Cogema[2]) (Noble and Bronson, 2004). Heavily influenced by several years of public inquiry concerning the environmental and socio-economic implications of mining for northern communities (see Kneen, 2006; Parsons and Barsi, 2001), and in light of the changing roles of government and industry in the development of the mining sector, a new 'tripartite framework' emerged that encompassed government, industry, and communities in industry regulation, impact management, and follow-up (Table 2.3).

In 1991, in response to three new uranium mine proposals (Cigar Lake, McArthur River, and Rabbit Lake - Eagle Point Extension), the federal and provincial governments combined efforts under the authority of their respective environmental legislations to establish a Joint Federal-Provincial Environmental Impact Assessment Panel on Uranium Mining Developments

[2] The Cogema Company is now under the name Areva Resources Canada.

in Northern Saskatchewan (Joint Panel). The Joint Panel had two specific goals: to determine whether the proposed projects were acceptable; and to provide full opportunities for public consultation and review.

Table 2.3 – Key Players in Saskatchewan Uranium Mining Industry

Government		Industry	Community
Federal	**Provincial**		
Canadian Nuclear Safety Commission (CNSC)	Ministry of Environment	Areva Resources Incorporation	Stakeholders: First Nation Groups, Athabasca and Northern communities, General Public
Environment Canada	Ministry of Advanced Education, Employment and Labour	Cameco Corporation	Non-government organizations
Department of Fisheries and Oceans Canada (DFO)	Ministry of First Nations and Métis Relations		

Source: Compiled based on interview responses

For seven years the Joint Panel examined the cumulative effects of the proposed projects on the Northern Saskatchewan environment, communities, and people. The final report of the Joint Panel, issued in 1998, noted that the majority of public consultations encompassed matters of community benefits and other social and economic concerns rather than environmental ones. In particular, many communities and First Nations groups wanted to participate in – and to receive benefits from – uranium mining activities (Parsons and Barsi, 2001). The Joint Panel further noted that although monitoring requirements were in place that met regulatory requirements and that biophysical data collection was ongoing, there were ongoing concerns about the quality of monitoring data and its effectiveness in determining mining impacts. For example, Noble and Bronson (2004) report that despite more than a decade of biophysical environmental monitoring, there were limited "…comparable, consistent data to establish the actual [cumulative] impacts of mining operations and radionuclide effects on fish; an exposure of considerable implications for human health". The Joint Panel concluded that the existing

environmental protection program was inadequate to deal with the potential issues emerging from further uranium development.

Recommendations of the Joint Panel led government to make significant changes in its regulatory framework for uranium mining. In order to address regional and community benefits for northern involvement in uranium development, the Joint Panel made major recommendations on procurement, education, protection, waste disposal, decommission, monitoring, roads, and worker safety (Lee, 1997). Recommendations were also made regarding improvements to existing environmental programs including consultation; ecosystem based monitoring utilizing valued ecosystem components; cumulative effects assessment; increased emphasis on site decommissioning to ensure proper closeout and environmental mitigation; and community participation in environmental monitoring. Two significant developments that emerged from the Joint Panel's recommendations were the formation of Environmental Quality Committees (EQC) and the Community Vitality Monitoring Partnership Process (CVMPP).

Environmental Quality Committees: To address the need for northern public participation in uranium mining regulation, the provincial government established three regional EQCs in 1995 (EQC, 2003). These EQCs were intended to help bridge the knowledge and information sharing gap between northerners, government, and industry (Cameco, 2007; EQC, 2003). In addition, the EQCs were designed to ensure that uranium mining activities take place in ways that consider the needs and aspirations of northern residents (Cameco, 2007; EQC, 2003). Each EQC was to consist of representatives from the affected communities as designated in each uranium mine's HRDA; individual members are nominated by their community to represent their concerns associated with uranium mining development. The activities of EQCs are supported by

professionals from the provincial government's Northern Mines Monitoring Secretariat. The EQCs serve as a "public consultation interface" between proponents and the community and, in doing so, have made a significant contribution to addressing issues of concern to northern communities and facilitating communication between the two groups (EQC, 2003; Goulet, 1997).

The Community Vitality Monitoring Partnership Process (CVMPP): Formed in 1998, the CVMPP focuses on monitoring and evaluating the effects of uranium mining activity on the vitality (social well-being and quality of life) of northern Saskatchewan communities (CVMPP, 2003). The CVMPP includes representatives from the Northern Mines Monitoring Secretariat, the northern regional health boards, the Northern Inter-Tribal Health Authority, Saskatchewan Health, and the two mining companies - Cameco and Areva (CVMPP, 2003). The first project of the CVMPP was completed in 2000, and focused on an out-migration study of the dynamics of northern residents relocating to southern urban communities. Since then, a number of projects have been completed regarding the availability of healthy foods in the north, youth initiative conferences, and youth workshops in attempt to promote positive life decisions (Cameco, 2007).

2.4.3.1 Integrating community and communication in follow-up

Through the recommendations of the Joint Panel, a tripartite framework emerged and various forms of follow-up procedures, committees, and processes began to take form throughout the 1990s. Of particular importance was the emphasis being placed on community involvement and incorporation of local communities in the uranium mining regulatory processes, including follow-up. Parsons and Barsi (2001) note that this framework specifically led to an increase in environmental regulation directly involving communities.

According to interviews with industry representatives, and confirmed by one of the province's industry regulators, the uranium industry emerged in the 1990s playing a leading role in follow-up activities, and taking a more aggressive stance on follow-up and environmental protection than industry regulators. Interviewees from the consulting sector, familiar with the uranium industry and its impact assessment framework, similarly indicated that during the 1990s industry emerged with a much stronger role and stake in follow-up, and with a felt responsibility to report to the public and its shareholders on its operations and performance. Interview participants also suggested that industry was taking greater initiative, being proactive, and exceeding expectations put forth by regulatory requirements - not only because companies are largely susceptible to public opinion, but because of an overall awareness of corporate-social responsibility and increased position on environmental leadership. That being said, two government officials shared the view that the balance of roles between industry and government have both significantly increased on each side, resulting in greater environmental protection and thus more overall attention to follow-up and monitoring. One industry representative agreed, suggesting that "...it would be an over-statement to say that the industry is doing it [follow-up] on their own volition. They want to be protective of the environment but without the regulatory drivers there..." it's unclear whether the follow-up process would be done so comprehensively.

Industry impact management documents and interviews with industry, government, and environmental consultants confirm that follow-up emerged in the 1990s from a largely biophysical-based monitoring program to one of greater public involvement in its process, addressing also social and community concerns. Concomitantly, participants also expressed the view that follow-up in the uranium mining industry had become more community-oriented and community input, knowledge, and concerns are now regarded with value and importance when

compared follow-up and monitoring programs that characterized the 1980s. Consistent with Morrison-Saunders and Arts (2005), one interview participant said that follow-up and environmental monitoring had evolved into a process with a more "community-centric approach" – one with increased communication between community and industry and government. As Parsons and Barsi (2000: 29) suggest, "the regulatory approach towards northern Saskatchewan uranium mine development [has] evolved from a closed, largely federal approach with no public consultation..." to one where "today the system is a comprehensive tripartite long term planning approach that includes the federal and provincial governments, mining companies, Indian bands, and northern communities".

Interview participants attributed many benefits to the increased level of communication in follow-up, ranging from better relationships to better environmental protection. For example, two industry participants specifically commented on the greater sense of trust which had developed among industry and the northern communities as a direct result of increased communication through follow-up programs. It was also mentioned that greater communication and community involvement has "...proven to be a very worthwhile learning experience and capacity-building exercise for northerners..." as it "...has allowed them to input to us [industry] what their real concerns are before the next project gets built". One industry participant indicated that a significant responsibility was placed upon industry to ensure that communities actually understood what potential impacts were associated with their geographical area in order to move forward with mining projects. Thus, it had become important to not only increase communication with communities but to educate them about the possible adverse impacts of uranium mining operations and the strategies in place to manage them. Through community meetings, programs, panels and groups, greater communication with and input from northern

communities was facilitated and enabled. Consequently, interviewees from industry and environmental consulting agencies felt that this has led to more meaningful monitoring and environmental protection whereby the concerns of the northern community are heard and accounted for in monitoring and impact management decision making.

2.4.4 Development of Private Partnerships

The Joint Panel of the 1990s increased follow-up awareness of northern Saskatchewan environmental, social, and economic issues. At the same time, the private sector began to play a more prominent role in follow-up and impact management, replacing the original position held by government (see Goulet, 1997) and slowly resulting in a new institutional form of EIA follow-up – one based on private partnerships between the industry and community.

Private partnerships between industry and northern communities are slowly becoming commonplace in the mining sector of northern Canada (see O'Faircheallaigh and Corbett, 2005). In the past, where follow-up had taken place, it had largely taken place at the regulator and the proponent level, with much less attention to actively engage communities in follow-up and monitoring activities (Morrison-Saunders and Arts, 2005). According to Galbraith et al. (2007), a primary reason for the lack of community involvement is the nature of EIA process itself - it fails to adequately provide project-specific follow-up, consider community benefits, or build trust and capacity amongst community stakeholders. As a result, new agreements have been introduced and implemented, outside the public domain of EIA, in order to account for these deficiencies and to supplement existing follow-up frameworks and practices.

In 1993 the Athabasca Working Group (AWG) was created by Cameco and Areva Resources in response to recommendations of the Joint Panel. The AWG represents the

communities of the Athabasca Basin, namely: Black Lake Denesuline Nation, Fond du Lac Denesuline, and Hatchet Lake Denesuline along with the northern settlements of Camsell Portage, Uranium City and Wollaston Lake and the northern Hamlet of Stony Rapids (AWG, 2004). The uranium mining companies represented on the AWG are Cameco and Areva. The AWG is part of a larger context of northern community relations (e.g. scholarships and training programs) undertaken by the uranium mining industry (AWG, 2006). According to interviews with industry representatives, the AWG was established to facilitate communication between the industry and community and address the concerns of Athabasca communities about the impacts of mining while building relationships and a sense of trust between both groups. Following negotiations with the AWG in June 1999, a comprehensive Impact Management Agreement (IMA) was signed between Cameco, Areva, and the AWG communities, which focused on three major areas: employment, training and business development; benefit sharing; and environmental protection (Cameco 2007a; AWG, 2004).

2.4.4.1 Privatized follow-up framework

A community-based environmental monitoring program was established under the AWG in 2000 to monitor the 'off-site' impacts of uranium mining operations with regard to air quality, water, lake sediments, fish, plants, and wildlife within the vicinity of the northern communities. Industry interviewees suggested this follow-up program provided local communities with reassurance in two ways: no uranium mining effects were occurring in this region, and in the event that any impact should occur compensation would be provided. The program was implemented to monitor and document potential changes in the environment as a result of uranium production (AWG, 2006).

According to Cameco, Areva, and the EQC, this environmental monitoring program is best described as “comfort monitoring” where the industry hires a consultant who partners with a northern community representative to monitor industry effects. Comfort monitoring was introduced to the northern Athabasca Basin as a scientific approach to alleviate non-scientific (community) concerns, while providing communities with a sense of ownership and the opportunity for technology transfer. All costs for the AWG process are sponsored by the mining companies (Cameco, 2007a; AWG, 2004). The program is currently in its 9th year.

The environmental monitoring under the AWG and IMA program emphasizes community involvement and includes training community representatives to collect samples to monitor baseline environmental indicators. The community is responsible for both appointing representatives to the program and for selecting local people to participate in environmental monitoring (AWG, 2004; 2006). Environmental monitoring data are collected in the spring (June) and fall (September) and include data pertaining to air quality (radon gas), water quality, lake sediment, vegetation, and wildlife (Cameco, 2007a; AWG, 2006; 2004). AWG members provide assistance in identifying specific monitoring locations near communities, and local communities and indigenous groups facilitate in the collection of environmental data utilized for follow-up and post-impact management processes and oversee testing by independent consultants (Cameco, 2007a; AWG, 2006; 2004). Results of the monitoring program are communicated and reported back to the communities. According to Cameco (2007b) and the AWG Annual Report (2006; 2004), no off-site, measurable environmental impacts or concerns from uranium mining have been identified.

In addition to biophysical effects monitoring, the AWG places significant attention on socio-economic issues monitoring as part of a larger benefits sharing arrangement established

through the IMA. Of particular interest are issues around training, education, and local business development. For example, many joint ventures and businesses (e.g. Northern Dené Airways Ltd., Points Athabasca Construction, Northern Resource Trucking Ltd.) have formed as a direct result of the presence of the uranium industry (Parsons and Barsi, 2001), offering an enhanced business capacity in the Athabasca region along with increased employment opportunities for Athabasca residents (AWG, 2004). According to Parsons and Barsi (2001), development of the industry has required and sustained high levels of investment and employment, as well as a continuing supply of goods and services for the mine, mill, and community support infrastructure.

2.5 Observations and Conclusion

In principle, based on the international literature and reported cases across industries and regions, follow-up in EIA is said to be shifting from that of solely monitoring and evaluating biophysical impact predictions towards linking up with environmental management and, more recently, communicating about the environmental performance of a project with the local community (e.g., Marshall, 2005; Morrison-Saunders and Arts, 2005; Noble and Storey, 2005). That being said, there have been few, if any, empirical studies that systematically describe and explain this transformation and evolution of follow-up in the context of a single industry and region. In response, this paper set out to examine the institutional development and evolution of EIA follow-up, and its changing roles and stakes in Saskatchewan's uranium mining industry – an industry that has been unfolding on the northern Saskatchewan landscape since the mid-1930s and pre-dates formal EIA systems and practices. Based on the case study results, a number of observations are ventured concerning the development and shaping of follow-up in the industry.

While these observations are based on the northern Saskatchewan uranium mining context, arguably they are equally applicable to follow-up programs in other industries and regions.

First, follow-up in northern Saskatchewan's uranium industry has shifted from a program based exclusively on biophysical effects and compliance monitoring to one that includes also socioeconomic effects and issues monitoring. Consistent with previous reviews of follow-up case studies and practices in the Canadian context (e.g. Noble and Storey, 2005; Noble and Macharia, 2004), follow-up and monitoring practices in the uranium industry were driven initially by regulatory requirements and focused heavily on compliance and biophysical effects monitoring in the local project environment. However, the public inquiry processes that characterized uranium development impact assessment during the 1970s and 1980s, combined with the privatization of uranium mining and a growing provincial interest in the socioeconomic development of the north, directed attention explicitly to the social and economic issues and concerns to northern communities. For the first time since the establishment of the industry, social and economic issues were brought to the forefront of development and impact assessment. Although social and economic issues did not at that time carry forward to the post-EIA stage of follow-up and monitoring, their inclusion in development impact assessment was instrumental in shaping the tripartite framework of government, industry, and community roles and stakes that emerged in the 1990s - later to be entrenched by the recommendations of the federal-provincial Joint Review Panel on uranium mining.

Second, with increasing attention to social and economic issues in the EIA and regulatory process, communities have emerged with a more prominent role in follow-up and monitoring programs. Community involvement in follow-up was played out in various forms in the uranium industry, including monitoring partnerships, environmental quality committees, and community-

industry working groups. Together, these partnerships, programs, and groups led to an increase in environmental regulation of the industry directly involving communities. Consistent with Morrison-Saunders and Arts (2005), there emerged a shift in follow-up and monitoring from regulator-driven compliance-based approaches towards a state of following-up for environmental management, with an increase in overall involvement and communication among all stakeholders, and a more community-centric approach with increased communication between community and industry and government.

Third, as the follow-up and regulatory process continued to evolve, and environmental regulation directly involving communities continued to increase, industry emerged with a much stronger role and stake in follow-up relative to government. This was in sharp contrast to the system of follow-up that existed throughout the 1980s and into the mid-1990s. As Jenkins (2004: 27) explains, "the mining industry, like any other, is subject to the pressures of increased stakeholder accountability and social and environmental responsibility: perhaps more so as they often operate in remote locations with indigenous peoples and their potential negative social and environmental impact is significant". A reflection of the growth of corporate social responsibility and environmental management policies and programs in the mining sector in general, the uranium industry emerged with a felt responsibility to report to the public and its shareholders on its operations and performance. As Marshall (2005) explains, communication through monitoring was seen as a means to inform communities and enhance the relationship between the industry and affected communities to pre-empt concerns about development impacts.

Finally, and closely associated with the above, is a more recent shift toward the privatization of follow-up and monitoring programs under the auspices of community-industry impact management agreements. This new era of follow-up is focused on private community-

industry partnerships, agreements, and programs, and encompasses both community-based biophysical effects monitoring and community impact benefit monitoring. While the rise in privatized agreements may be in part a response to the deficiencies of the EIA process in terms of community engagement (see Galbraith et al., 2007), O'Faircheallaigh (2007) suggests that such agreements supplement, rather than replace, existing regulatory regimes and provide for more effective follow-up and environmental management of projects to take place while at the same time involving communities in a more meaningful way. According to Falkner (2003) and Cashore (2002), follow-up of this nature may be a reflection of the growing philosophy of the privatization of environmental governance.

2.5.1 Conclusion

The institutional development of EIA follow-up in Saskatchewan's uranium industry has been an ongoing process of transformation and evolution. This evolution, however, is best characterized as discontinuity: the displacement of one form of follow-up giving way to another; the discontinuity of unnatural breaks in regulatory systems and industry practices; and the disruption of a previously established follow-up order. The current system of follow-up in the uranium industry emerged from a solely regulatory-driven process of biophysical effects and compliance monitoring in the local project environment, to include also a more participatory but private partnership-based process with direct community engagement in off-site effects monitoring and the inclusion of socioeconomic and impact benefits monitoring. This new privatized system of follow-up is likely a reflection of the reality doing business in the north, with increasing accountability and responsibility to communities. At the same time, however, much of this new era of follow-up practice is occurring outside the public realm of EIA. As a result, little is known

of the efficacy of follow-up under impact management agreements and of the real contribution of privatized follow-up to improved project performance and environmental effects management. As mineral and energy resource developments continue in northern Canada, and as the EIA process is increasingly criticized by industry, academics, and communities alike, there is a need to understand better the roles of follow-up under private agreements and how they can 'link-up' with the regulatory process in support of more informed development, better EIA, and overall improved environmental management practices.

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CHAPTER 3

THE CONTRIBUTION OF PRIVATIZED AGREEMENTS TO ENVIRONMENTAL IMPACT ASSESSMENT FOLLOW-UP IN SASKATCHEWAN'S URANIUM MINING INDUSTRY

3.1 Introduction

Environmental Impact Assessment (EIA) is a planning process used to predict, assess, mitigate, and monitor the potential environmental and social impacts that may be associated with a proposed development project. Fundamental to the EIA process is follow-up, "...the monitoring and evaluation of the actual impacts of a project that has been subject to EIA for management of, and communication about, the environmental performance of that project (Marshall et al., 2005; Morrison-Saunders and Arts, 2004). As a feedback and learning process, follow-up in EIA serves to improve project environmental performance and management practices, ensuring that projects are meeting intended goals and objectives, that mitigation measures are working, and that unforeseen impacts are detected. Despite this, follow-up in the post-consent decision stages of EIA is performed in only a minority of cases and has been described as the missing link between EIA and effective project management (Noble and Storey, 2005; Ramos et al., 2004). In those cases where follow-up has been done, it has taken place at the level of the regulator and the proponent with much less attention to actively engaging communities and stakeholders in follow-up and monitoring activities (Morrison-Saunders and Arts, 2005). Part of the reason for this, explains Galbraith et al. (2007), is that the current EIA process does not adequately provide project-specific follow-up, consider project and community benefits, or build trust and capacity among stakeholders. That said, there is now emerging, particularly in Canada's northern regions,

a new institutional form of EIA follow-up: community-based monitoring programs, under the auspices of formal community-industry Environmental Agreements.

Environmental Agreements are one of three types of agreements often negotiated between a community and industrial proponent as part of the EIA process. Whereas Socioeconomic Agreements (SA) and Impact Benefit Agreements (IBAs) focus on broader economic development and the specific benefits that a community can expect from development in exchange for support and cooperation, Environmental Agreements are focused on project impact mitigation, monitoring, and follow-up (Galbraith et al., 2007). Environmental Agreements cover the entirety of a project, including: construction, operation, rehabilitation, and decommissioning, and seek to facilitate the participation of Aboriginal peoples, governments, and resource developers in the environmental management of projects in ways that do not occur under existing regulatory regimes (O'Faircheallaigh, 2007). In this way, Environmental Agreements have the potential to supplement existing EIA processes and to involve key actors in creating institutional structures and management processes deliberately and specifically designed to facilitate community involvement, and to promote effective EIA follow-up and adaptive management over the course of a project (O'Faircheallaigh, 2007).

The challenge, however, is that notwithstanding the growth of Environmental Agreements they are also privatized agreements and very little is known about their nature and role in the post-decision stages of EIA. Aside from few select studies (e.g. Prno and Bradshaw, 2008; Galbraith et al. 2007, Fidler and Hitch, 2007; O'Faircheallaigh 2007; O'Faircheallaigh and Corbett 2005), there has been little research on emerging Environmental Agreements in EIA, and even less concerning the nature of these agreements and their role in project and community impact management and follow-up. As such, the purpose of this paper is to examine the role of

community-based Environmental Agreements in and their contributions to EIA follow-up and impact management practices. In order to accomplish this, a case study of the Athabasca Working Group (AWG) Environmental Agreement in Northern Saskatchewan's uranium industry is explored. Specifically, this paper examines the scope of the AWG Environmental Agreement, including the nature of community involvement in monitoring programs, with the aim of understanding whether and how such agreements contribute to EIA follow-up and impact management practices.

This paper consists of four main sections, including the introduction. In the section that follows a brief overview of Environmental Agreements and EIA follow-up is presented. This is followed by an overview of the AWG Environmental Agreement in Saskatchewan's uranium industry, and the results of the case study analysis. The paper concludes with observations regarding the role of Environmental Agreements in and their relationship to regulatory EIA follow-up.

3.2 The Nature and Scope of Environmental Agreements

Environmental Agreements are formal agreements between a community and a development proponent as a means of managing the impacts of project development and operations (Galbraith et al., 2007; Galbraith, 2005; Armitage, 2005; Dreyer and Meyers, 2004). Sosa and Keenan (2001) note that these agreements are negotiated for different reasons, depending on the particular Aboriginal land and resource rights, the regulatory framework in place, and the relationship that exists between the affected communities and the mining company. While earlier forms of community-industry agreements focused primarily on employment, more recent agreements often include social and cultural programs, dispute resolution mechanisms and

revenue sharing provisions, and environmental restrictions among other elements (Sosa and Keenan, 2001).

Negotiated Environmental Agreements are now almost commonplace in the mining sectors of Canada, Australia, and the USA, and are beginning to emerge in developing nations and in other industry sectors (O'Faircheallaigh and Corbett, 2005). In the Canadian northern context, five Environmental Agreements for major projects have been implemented in the past decade, namely for the Ekati, Diavik, and Snap Lake diamond mines in the Northwest Territories, the Voisey's Bay nickel mine in Newfoundland and Labrador, and the Horizon Oil Sands project, Alberta. All five agreements establish goals and mandates that relate to Aboriginal participation in environmental management, EIA follow-up, and adaptive management; only two (Diavik and Snap Lake) included government as a signatory; none emerged because of a legal requirement for the negotiation of an agreement (O'Faircheallaigh, 2007).

Environmental Agreements are, arguably, a reflection of the growing philosophy of the privatization of environmental governance (Falkner, 2003; Cashore, 2002). An assessment of the Mackenzie Valley Environmental Impact Review Board (MVEIRB) and associated IBAs, for example, was conducted by Galbraith et al. (2007) to determine whether the rise of these private agreements might be attributable partly to deficiencies in the environmental assessment process. The authors concluded that their evaluation not only supported this hypothesis stating "…these deficiencies could certainly account for the rise of private agreements" but also added that "further evidence was provided by the key informants when asked directly about their rationales for using these agreements" (Galbraith et al., 2007: 36). In addition, they found that the agreements associated with the MVEIRB addressed particular issues and potential effects that the EIA did not.

Galbraith et al. (2007: 38) concluded that their findings not only suggested a link between the rise of private agreements and the design and practice of EIA, but it "...was apparent that these agreements deliberately offset failings in the design and practice of the MVEIRB E[I]A process". Galbraith et al. (2007) argued that the conventional EIA process does not adequately provide for project-specific follow-up, consider benefits, or build trust and capacity among stakeholders. Arguably, as a result, more Environmental Agreements have arisen, in part, to compensate for these perceived deficiencies in EIA design and practice. O'Faircheallaigh (2007) echoes this claim, arguing that Environmental Agreements provide institutional structure and opportunity to promote and facilitate good follow-up practice. As the use and implementation of Environmental Agreements continue to rise, and as EIA follow-up practice in general continues to struggle, there is an increasing interest in the potential of such agreements to 'link-up' with and facilitate EIA follow-up.

3.2.1 Linking environmental agreements with EIA follow-up

The majority of follow-up activity in EIA is institutionalized at the level of the regulator and the proponent, with much less attention to actively engaging communities and stakeholders in follow-up and monitoring activities (Morrison-Saunders and Arts, 2005). While the potential for EIA follow-up at the community-level is well-documented (e.g., Hunsberger et al., 2005; Morrison-Saunders et al., 2003), recent experience in northern Canada suggests that meaningful involvement in follow-up has not frequently occurred from either a community or Aboriginal perspective (Lawe et al., 2005). Thus, it is evident that conventional EIA does not adequately address the importance and role of local communities and especially northern Aboriginal populations in follow-up practice (Galbraith, 2005; O'Faircheallaigh, 1999; Tollefson and

Wipond, 1998; Edelstein and Kleese, 1995; Higgins, 1993). Environmental Agreements may have the potential to respond to this inadequacy through their focus on impact management at the level of the community, Aboriginal groups, and the proponent, and with an emphasis on community involvement – principles inherent to good follow-up.

According to O'Faircheallaigh (2007: 322), "the goals and mandates of many existing corporate and government institutions involved in environmental management do not afford a central place to promoting indigenous participation, effective EIA follow-up, or adaptive management." However, in recent years the negotiations of private agreements have created a unique facet of communication and sense of understanding between indigenous communities and proponents of resource development to do just that. As O'Faircheallaigh and Corbett (2005) propose, IBAs and Environmental Agreements have facilitated an alternative mechanism through which communities may be able to fulfil their desire and their responsibility to be involved in minimizing adverse environmental impacts from large-scale resource development.

The benefits of involving communities in the EIA process have long been recognized, and range from ensuring that the project itself carries more legitimacy to enhancing the effectiveness of monitoring and impact management measures. Hunsberger et al. (2005: 624), for example, "suggest that increased citizen participation in follow-up activities such as monitoring could help to improve the quality and local relevance of environmental assessment, while at the same time advancing the process toward sustainability goals". This is consistent with O'Faircheallaigh and Corbett's study (2005: 630) of indigenous participation in environmental mining projects, where the authors found that "…effective environmental management cannot be achieved without substantial input from civil society and indigenous peoples". Hunsberger et al. (2005) go on to suggest that follow-up programs utilizing community-based monitoring should not only better

assist in tracking cumulative effects of multiple projects, but also advance the follow-up process toward sustainability goals.

Strictly from a monitoring perspective, Environmental Agreements also present the opportunity to facilitate the integration of local and traditional ecological knowledge (TEK) in follow-up practices. Broadly speaking, TEK refers to "…a cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and their environment" (Berkes, 1999: 8). Usher (2000: 186-187) further classifies TEK into the following four categories of information: (1) Knowledge about the environment; (2) Knowledge about past and current use of the environment; (3) Culturally based values about the environment; and (4) Culturally based cosmology serving as a foundation of the knowledge system that underlies the first three categories and is the framework with which people construct knowledge from facts. In Canada, especially in northern Canada, it has become a policy requirement that TEK be considered and incorporated into environmental assessment and resource management (Usher, 2000), and a considerable body of literature stresses the need for and importance of TEK in both EIA follow-up practices and Environmental Agreements themselves (e.g., O'Faircheallaigh, 2007; O'Faircheallaigh and Corbett, 2005, Armitage, 2005; Feit, 2005; Galbraith, 2005; Usher, 2000). According to O'Faircheallaigh (2007: 324), Environmental Agreements "...should provide for the mobilization and application of relevant knowledge" and it is in this regard that TEK can play a central role. In the case of Hydro Quebec's la Grande Hydroelectric Complex, for example, Denis (2000) reports that the knowledge base of Aboriginal communities is being incorporated into project impact management and ecological restoration programs. Similarly, evidence from the US Glen Canyon

Dam project (Austin, 2000) indicates that community involvement in follow-up programs may lead to an increased capacity to deal with environmental change and the impacts caused by project development.

In summary, central to Environmental Agreements is a commitment to ongoing systems of environmental monitoring and review and use of the information generated to assess EIA predictions and the efficacy of impact management. It is this ongoing system of monitoring and performance evaluation that is said to be "…precisely what has been missing from conventional regulatory systems that emphasize project approval..." (O'Faircheallaigh, 2007: 336). In recent years there has been an increase in Environmental Agreements, particularly in northern Canada and in the mining sector at large. However, the corresponding literature is limited and also fairly recent and, as such, little is known about the nature and efficacy of monitoring provisions under Environmental Agreements or whether Environmental Agreements support regulatory-based EIA follow-up programs at all. That being said, as northern resource development continues to increase, and as the Canadian federal EIA system itself is currently under review, now is an opportune time to learn from case experience and to identify opportunities to link up Environmental Agreements and associated monitoring programs with EIA-based follow-up practices and impact management.

3.3 Case Study: The Athabasca Working Group Environmental Agreement

The northern Athabasca region of Saskatchewan, Canada, holds many high-grade uranium deposits and is home to several small, remote Aboriginal communities (Figure 3.1). The Athabasca Basin has been a focus for the uranium mining industry since the 1930s when pitchblende, an oxide of uranium, was discovered on the northern shore of Lake Athabasca

(Wiles et al., 1999). Occupying nearly one third of the surface area of the Saskatchewan Shield (100,000 square kilometres) the northern Athabasca region is one of the world's most important supplies of uranium, accounting for approximately 30% of world output (GOS, 2007; Card et al., 2006).

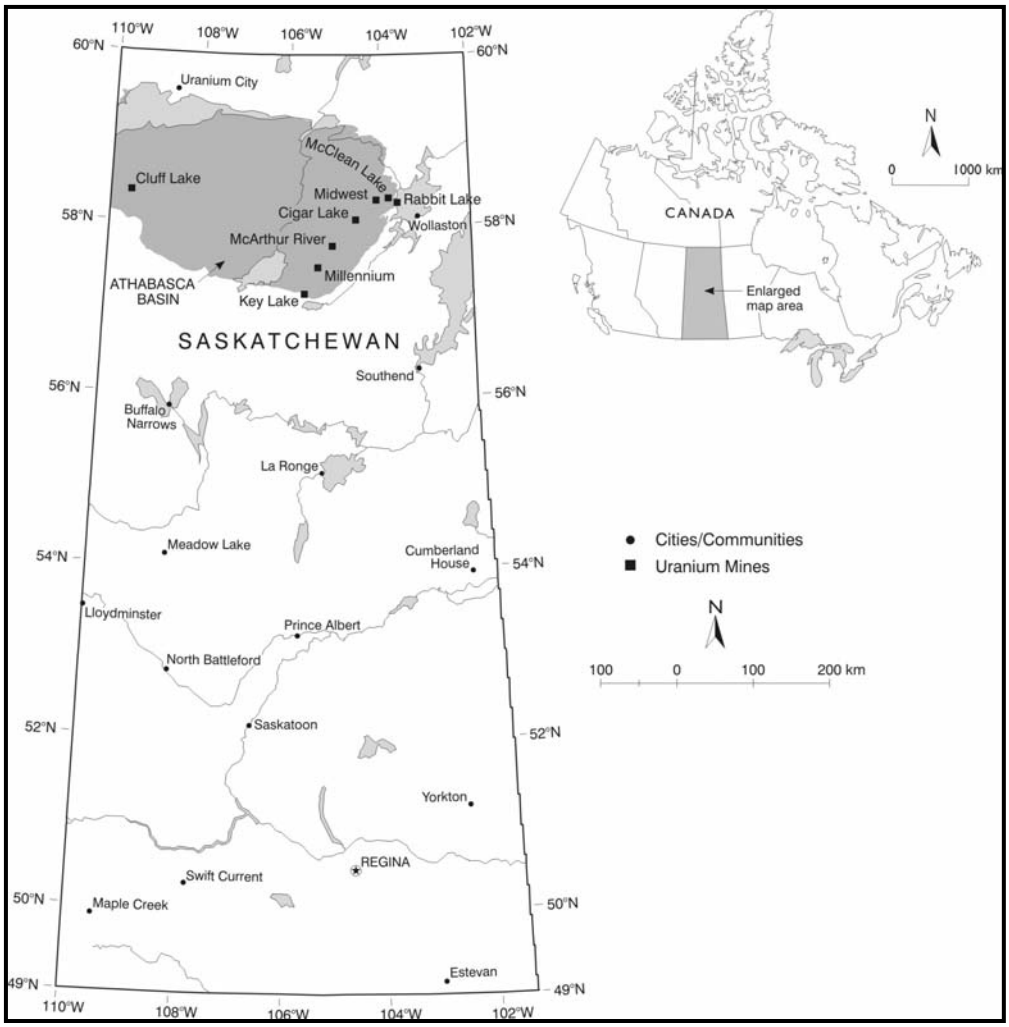

Figure 3.1 – Main Uranium Mining Operations in the Athabasca Basin
Source: Map produced by Keith Bigelow, University of Saskatchewan

The province's uranium mines are primarily owned and operated by Cameco Corporation and Areva Resources Canada, with McLean Lake, Key Lake/McArthur River, and Rabbit Lake being the three main uranium mines currently operating in northern Saskatchewan. In 2007, a total of 9,465 tonnes of uranium (24.6 million pounds of U_3O_8) was produced by Saskatchewan mines via underground, open pit, and stockpile mining. Over the last three decades in particular, uranium has been an important Canadian energy resource used in nuclear power reactors, providing 15% of Canada's electricity supply (SMA, 2007). As the demand for uranium continues to increase internationally; value, production and extraction from northern Saskatchewan uranium mines continue to rise.

Since the late 1940s, northern Saskatchewan has experienced active uranium exploration, development, and processing under a range of impact management and regulatory frameworks that have shaped the current roles and stakes of follow-up in the uranium mining industry. In 1993, the Athabasca Working Group (AWG) was created by Cameco and Cogema (now Areva) in response to recommendations of a Joint federal-provincial EIA Panel appointed to examine the environmental, health, and socio-economic effects of uranium mining in northern Saskatchewan (Cameco, 2007; AWG, 2004; Noble and Bronson, 2004). The AWG includes both Cameco and Areva, and represents the seven communities of the Athabasca Basin, namely: Black Lake Denésuline Nation, Fond du Lac Denésuline, and Hatchet Lake Denésuline, along with the northern settlements of Camsell Portage, Uranium City and Wollastin Lake and the northern Hamlet of Stony Rapids.

Following negotiations with the AWG in 1999, a comprehensive Environmental Agreement was signed focusing on three major areas: environmental protection; employment, training and business development; and benefit sharing (Cameco 2007; AWG, 2004). The

rationale for the AWG and the Environmental Agreement is largely attributed to the recognized need to increase trust and reassurance and to build relationships with local communities, emerging in part from a sense of corporate responsibility to ensure that stakeholders are involved and familiar with the mining activities taking place in the region. As part of the Environmental Agreement, a community-based environmental monitoring program was established in 2000 to monitor the 'off-site' impacts of uranium mining operations within the vicinity of the northern communities. Currently in its 9th year, little is known about the efficacy of this monitoring program and, more specifically, its role, if any, in EIA follow-up and impact management.

3.3.1 Methods

Semi-structured interviews and document reviews were utilized to carry out this research. Aided by an interview schedule of ordered but flexible questions and discussion points, a total of 22 semi-structured interviews were conducted from February to August 2008. The interviews explored three main themes: the AWG Environmental Agreement including roles, rationale, and monitoring program scope and coordination; the benefits and challenges of the Agreement; and the future directions of the Agreement. This flexibility in interview design facilitated a more natural conversation and accommodated change in the presentation of questions to ensure specific themes could be fully explored and developed (see Flowerdew and Martin, 2005; Dunn, 2000). Concomitantly, it allowed for structure in the organization and categorization of information based on a predetermined framework of evaluation. Interviews were a particularly useful technique in this research for many reasons: they assisted in filling a gap in knowledge which other methods, such as document review, were unable to bridge effectively; complex behaviours and motivations could be investigated; a diversity of opinions and experiences could

be collected as interviews provide insights into differing opinions, but may reveal consensus on some issues (Dunn, 2000: 52). Interviews were tailored based on the participants so as to accommodate and account for the different parties' involvement in the industry and AWG, acknowledging that some may be more familiar with particular aspects of the Agreement than others.

With consent, all interviews were audio taped and then transcribed. Interviews were analyzed with the assistance of Atlas.ti © software whereby each interview was classified into themes and then assigned different codes to interpret the data. By coding the data, interpretation of information and linking relationships or concepts together was done effectively. In addition, Atlas.ti made the retrieval and the overall organization of data a much more efficient process.

Interviews with industry and regulators

Twelve semi-structured interviews were completed with various uranium mining representatives from Cameco and Areva, federal and provincial government regulators, and environmental consultants. Initial identification of industry participants was done with the assistance of Cameco Corporation's Environmental Affairs group. Remaining interviewees were identified using a purposeful sampling procedure by seeking out industry representatives, regulators, and industry consultants in positions who were likely to have in-depth knowledge of EIA, the uranium industry, and the AWG Environmental Agreement, using a 'snowballing' technique (see Mason, 2002; Bryman, 2001).

Interviews with industry officials were requested by email and telephone invitation where a brief research summary including purpose and objectives were provided, and by word of mouth. These interviews ranged from half an hour to two hours in duration, with the intent to gather

qualitative data and to gather knowledge from industry, government, and environmental consultants on the three main themes outlined in the interview schedule. In addition, the interviews provided for a more in-depth inquiry as to how the AWG and the Environmental Agreement developed and how data collected from the community-based program are being used in management and follow-up practices. Ten face-to-face interviews were carried out, and two telephone-interviews were conducted in those cases where a one-on-one meeting was not possible due to scheduling. Interviews conducted in person took place at a participant's place of business. All interviews were scheduled according to the interviewee's availability; and telephone-interviews were scheduled in a manner where the researcher would call at the selected time agreed upon by both parties. A card was mailed out to each individual thanking him/ her for their participation in the project. It was apparent that an adequate number of officials and regulators had been contacted when the themes and/or comments within interviews began to repeat themselves, and when the names of potential participants also started to become repetitive.

Local AWG community interviews

Ten semi-structured interviews were conducted at Wollostan Lake and the Pine Channel Community Pilgrimage with local community representatives and elders of the AWG. The Pine Channel Pilgrimage is held annually for up to two weeks in the summer months where all Dené communities in the Athabasca Basin gather to take part in various community and religious activities (e.g. communions and confirmations). Interviews with the Athabascan community members involved a one-week trip by the researcher in July to the northern basin, coordinated by Cameco's Northern Community Relations Committee. A brief research summary including the purpose, objectives, and the interview questions were provided to the Northern Community Relations Coordinators in advance. Efforts to organize this trip involved email and telephone

discussions with Cameco's Northern Affairs Group on the logistics of the trip including: flight arrangements to various northern locations; accommodations; obtaining a Dené-speaking translator; and daily transportation via boat to and from the Pilgrimage.

A total of four interviews were conducted with Wollostan Lake community members and elders at the Hatchet Lake Denésuline First Nations Economic Development Corporation Office. Interviews at Wollostan Lake were administered with the assistance of an AWG member and Cameco's Northern Affair's Group. Six interviews were conducted at the Pine Channel Community Pilgrimage, northwest of Stoney Rapids. The interview process at the Pine Channel Pilgrimage involved first visiting and making acquaintances with individuals at their campsite, having tea, and general conversation. After this initial contact had been established, the research project was introduced, and their participation in an interview requested. Individuals associated with mining companies (e.g. those employed by or who had family employed by organizations such as Cameco or Areva) often declined; however, some did participate. As participation was voluntary, interviews were done on the basis of who was available, showed interest, and was willing to participate. In some cases participants agreed to an interview and expressed returning the next day, but were often unavailable at that time. AWG members who expressed interest in participating in an interview but were not available during the Pilgrimage were contacted via telephone three to five times at a later date; unfortunately no response was ever received from these individuals.

Interviews with the AWG community members held at both Wollostan Lake and Pine Channel were up to one hour in duration. Interview questions were open-ended and attempted to ascertain local community members' perspectives and views on the AWG monitoring program and the Environmental Agreement. In addition, it offered a more in-depth inquiry of the benefits

of the community monitoring program, its challenges, and areas in need of improvement. When necessary, a Dené-speaking translator was used. An honoraria gift of tobacco, tea, and a University of Saskatchewan pin was offered to each individual thanking them for their participation in the project.

Document reviews

Interviews were supplemented by document reviews in order to provide additional information on the establishment, background, and nature of the AWG monitoring program and the Environmental Agreement. Document review broadly refers to the various procedures involved in analyzing and interpreting data generated from the examination of documents and records relevant to a particular study (Schwandt, 2007). When applied, document reviews are an unintrusive form of research with minimal, if any, impact on the research setting (Babbie, 2002).

The document review method possesses a variety of strengths, including an approach where a researcher can accesses the appropriate documents and categorize them according to a predetermined conceptual framework; the process is relatively inexpensive; it is a good tool for studying a wide variety of communications; and it allows a researcher to study processes over a time period, and given the static nature of the research setting, results may be verified (or not) by other investigators (Babbie, 2002; Marshall and Rossman, 1999; Babbie 1992). Documents used for this study were collected and reviewed between October 2007 and June 2008. These documents included: uranium mining reports in northern Saskatchewan; Cameco records, articles, and files (e.g. Northern Saskatchewan's Environmental Quality Committee Report to Communities, 2002-2003; Northern Saskatchewan Community Vitality Monitoring Annual Report, 2003); the Environmental Agreement established between Cameco, Areva, and the

AWG; AWG Annual Reports; and other research completed on both industry environmental assessments and the Environmental Agreement documents and literature available to date.

3.4 Results

In the sections that follow the results of the case study interviews and document analyses are presented. Attention is focused on the environmental protection component of the Agreement, specifically the community-based monitoring program, and how it 'links up' with project-based EIA follow-up processes. The results are presented in three major sections: the nature and scope of the Environmental Agreement's community-based environmental monitoring program; perceived benefits emerging from the Environmental Agreement and monitoring program; and enduring challenges. Each section identifies and discusses the major themes that emerged from interviews and document reviews. So as to ensure the confidentiality of interview participants, only aggregate or summary results of the interviews are presented. In other cases, the participants' general affiliation (e.g. industry, regulator, consultant, community member) is identified but the names of specific companies, community affiliation, or government units are withheld.

3.4.1 Community-based environmental monitoring program nature and scope

The community-based environmental monitoring program under the AWG Environmental Agreement is intended to ensure that no adverse environmental effects from uranium mining and milling operations are affecting the air, water, vegetation, and wildlife surrounding the seven Athabascan communities in the Basin. Funded by Cameco and Areva, the AWG has directed the environmental monitoring program since 2000 (Cameco, 2009). The program involves industry hiring a consultant who partners with a northern community representative to monitor industry

effects. According to industry officials, the program originated at the request of the AWG communities. It was said that communities requested assurance that no environmental effects were occurring downstream surrounding each of the seven northern Athabascan communities from any uranium mining activities, and that it was repeatedly stated by the Athabascan communities that they wanted a means to monitor the environment themselves so as to ensure that information and results from monitoring would be unbiased. According to AWG *Annual Reports*[3] (AWG, 2004; 2006), and industry and consultant interview participants, the environmental monitoring program emphasizes community involvement and includes training community representatives to collect samples to monitor baseline environmental indicators. The community is responsible for both appointing representatives and selecting local people to participate in environmental monitoring. To date, no adverse effects have been detected.

Nature and scope of the monitoring program

Environmental monitoring data are collected in the spring (June) and fall (September), and include samples related to air quality (radon gas); water quality in streams and lakes near communities; lake sediment; vegetation quality and occurrence, including berries and traditional use plants; and animal muscle tissue for health and contaminants assessment (Cameco, 2007a; AWG, 2006; 2004). Members of the AWG collectively identify specific monitoring locations near the communities (AWG, 2006; 2004), and Aboriginal local community members facilitate and participate in the collection of environmental data, which are then tested by independent environmental consultants (Cameco, 2007a; AWG, 2006; 2004). Discrepancy and uncertainty does seem to exist concerning who decides on sample locations and sample types. Although literature and interviewees from industry and some environmental consultants indicate that all

[3] Annual Reports for following years have either not been released or made publically available.

data collected through the program (i.e. location and types of samples) is largely determined and influenced by the communities themselves, and incorporated forms of local knowledge[4], several AWG community members said that it was industry who determined what was collected, and where. One consultant noted that determining monitoring indicators was done cooperatively with the AWG Board, community elders, industry, and independent biologists.

When asked if additional types of data should be collected or monitored that was not currently included in the scope of the monitoring program, community and elder participants all indicated a need for additional testing of water quality in lakes and streams, including also testing of additional small fish species, such as minnows, which have reportedly been noticed by community members as occasionally found floating ashore with deformed bodies. A number of community interviewees attributed this occurrence to mining operations; noting that local fishermen never had prior experiences of this kind, and that occurrences are reported to be largely on the west side of lake Athabasca where mining activity is concentrated. Additional indicators or variables identified as important to include in the monitoring program were low-bush berries, such as blackberries; birds and their nesting eggs, for potential deformities; larger-scale disasters, such as forest fires, and the effects on wildlife and habitat; and the long-term effects of uranium mining on the community.

Scientific merit and use of local knowledge

The community-based monitoring program follows standard scientific protocol for sample collection and processing, allowing results to be comprehendible, understood, and trusted in a scientific realm. However, some participants suggested that local community knowledge is being utilized and plays a significant role in the program. For example, one consultant, who served as

[4] When industry utilizes TEK it is usually narrow in scope.

an aquatic ecologist and worked with the communities to collect monitoring data, suggested that the program provided a good example of mixing traditional knowledge and western science, because both knowledge systems were utilized and equally valued.

That being said, one industry interviewee explained that data collected by the communities is not truly of "...acceptable quality because frequency of samples are so low when compared to the upwards of 750 samples collected for industry's impact management program." Another industry participant went on to explain that although methods for data analysis from the community-based monitoring program and industry's EIA follow-up program are similar, the results are not "directly comparable" as how and where samples are taken differ. One consultant echoed this claim, stating that the community-based monitoring data are supplementary to industry or regulatory follow-up programs, "...because it's definitely not based on the same sampling locations" and "[t]hey're collecting it from a larger area but with a smaller sample size so it makes it difficult to actually compare the two". Interestingly, when community interviewees were asked whether they felt that industry regarded information collected by the AWG program to be important in effects management, participants responded positively, suggesting that the data was considered important and that industry listened when the AWG had concerns about monitoring results or felt that additional monitoring was necessary.

Comfort monitoring

Several industry interviewees commented on the importance of the communities collecting monitoring data, as the results have greater merit and are more accepted in the community realm; however, industry, government, and consultants all shared the same view that no environmental effects from uranium mining facilities could actually be detected at the community monitoring

locations – the sites are simply too far removed from mining operations. As such, there is general consensus among industry, government, and consultant participants that the community-based environmental monitoring program is 'comfort monitoring.' As one interviewee explains, comfort monitoring was introduced to the Agreement as a scientific approach to alleviate non-scientific (community) concerns, while providing communities with a sense of ownership and an opportunity for technology transfer. Consequently, the monitoring program is complementary to EIA follow-up and monitoring activities carried out by the industry, but it does not replace such activities. Another industry representative mentioned that the monitoring conducted by the program is specifically designed to leave the communities comfortable and at ease that no impacts are occurring. Although the program was designed to monitor and document potential changes in the environment as a result of uranium production (AWG, 2006), it primarily serves to provide Athabascan communities with "peace of mind knowing results have not been tampered with", thereby maintaining a level of trust and assurance. In an effort to keep data and results impartial, monitoring samples collected by community members are treated independently and processed by the Saskatchewan Research Council.

3.4.2 Perceived benefits emerging from the monitoring program and Agreement

The AWG monitoring program under the Environmental Agreement has provided many benefits to both industry and community. These benefits, based on the interview results, include increased communication among community and industry; a developing sense of trust and assurance; education and capacity building; and improved corporate image.

Increased communication among community and industry

There was general consensus among participants that one of the benefits of the monitoring program, and a primary benefit of the Environmental Agreement in general, has been the increase in communication between both parties. Local community and elder participants suggested that the AWG and monitoring partnership was a positive one, noting, for example, that meeting with the industry provided an opportunity for communities to discuss their environmental concerns. An AWG member, who is also a community representative, further added that the AWG allows the community voice to be heard. Representatives from industry echoed this claim, stating that the Agreement provides "... a very respectful setting and that the balance of power seems to be even-handed. It provides a forum of communication, exchange, and resolutions." Another indicated that "the primary benefit [of the Agreement] was that it just gave us a really unique opportunity to establish a really close working relationship with northern communities." This participant went on to note that the relationship between the groups is "...not perfect, but it's another conduit that through which we could establish a special relationship". Consistent with industry, interviewees from the consulting sector agreed that the Agreement has facilitated communication as it has "...provided a venue for mutual communication between company and communities".

Sense of trust and assurance

Through increased communication, additional benefits have emerged. In particular, a degree of trust and assurance seems to have developed between community and industry. One industry participant expressed that the Agreement "is a reassurance provided to northerners, to government, to ourselves that we are in fact not having effects as we had predicted. It allows us to use that information to build confidence in the industry and really will be the basis of moving

forward with future initiatives with that confidence in place". Another industry participant said that the Agreement increased the confidence that Athabascans had in industry, and it was a tool to earn a broader corporate social license. That being said, some community interviewees communicated some suspicions of monitoring program results, and questioned the integrity of industry. However, one community elder explains "you can't actually just blame industry" for all environmental impacts occurring in the Basin. She gave an example of a fish deformity that, upon dissection, was found to be caused by common household waste as opposed to industry-caused contamination.

Overall, community participants spoke positively about the monitoring program and noted that it was protecting both land and livelihood. As one community member noted, "there's been a few minor damages but I don't think its created long-term effects, but they've been cleaning it up. They've been more or less trying to contain it. Better ways to improve it for next time, so that's a big change for the last 20 years." Industry, government, and consultant representatives shared this view, affirming that the comfort provided to local stakeholders assisted in building trust, and allowed for more effective communication to occur. As one industry participant explains, instead of having several meetings where communities would say "you're polluting our water, you're polluting our fish, we [industry] can get over that and onto other issues and have more meaningful discussions about other things that might matter". It is apparent that trust, assurance, communication, and comfort are complimentary and form the core of the key benefits emerging from the Agreement and monitoring program.

Education and capacity building

Government, industry, and consultants all agree that an important feature of the Agreement, through the AWG monitoring program, is that it facilitates community education and increased

awareness of what is occurring in the local area by way of uranium mining and environmental change. One industry interviewee explained that the monitoring program educates the community by informing them of mine site activities and processes, while allowing them to gain knowledge from the scientific process of gathering data. One of the industry consultants added that the entire program under the Agreement "introduced an educational component that has been hugely important in filling an information gap that was absolutely massive between communities, companies, and governments". Industry participants further suggested that an important feature of this education is that it also builds capacity in the communities. It was noted that building capacity is not only inherent in the Agreement, but the intent behind it was well. The interviewee went on to explain that "...building capacity in these communities so they can not only understand and articulate the impacts on the environment could be realized through uranium mining [was significant], but they can also get to build their own capacity to sort of monitor their own environment, to explain what's going on, and to understand how changes can occur in key species and valued ecosystems".

Corporate image

Finally, the last benefit identified was one experienced by industry itself – that of building a better corporate image. One consultant felt that the image of mining companies, particularly in the north, where it is of greatest importance to them, has become more positive as a result of Environmental Agreements. It was mentioned that the companies are regarded as doing something useful and being fairly proactive at doing it, therefore the industry image has developed on its own. A participant from industry added that other First Nation groups, such as those in Australia, appear to be more willing to conduct business with companies such as Cameco, after having heard of the positive outcomes associated with the Agreement. As a result,

the interviewee explains, this potentially provides greater opportunities to expand mining ventures internationally.

3.4.3 Enduring challenges

Notwithstanding the perceived benefits, there are also many challenges associated with the monitoring program and Environmental Agreement. These include issues related to communication of monitoring program results; continuity, coordination, and consultation; transparency of the Environmental Agreement; and the need for on-going review and transformation of the Agreement itself.

Communication of monitoring program results

Participants identified a need for improvements in communication and dissemination of the monitoring program results to the AWG communities. This need was largely recognized by industry and First Nations participants, although one consultant also shared this perspective. Participants noted that monitoring results, which are presented usually in pamphlet or report format, do not relay results in a meaningful way to the Aboriginal community. For example, three community elders and two other community members indicated that the results are essentially "alien" to them and hold no real value as reported in their current form. Industry tended to agree, with one participant indicating that the system of information sharing has often been "...to create a beautiful nice document which is understood in Saskatoon quite readily" but it means little to the northern Aboriginal community member.

The consultant who participated in data collection with the communities noted that one of the most difficult aspects of the entire process is trying to get locals to understand what the results are: "you are often dealing with people who don't speak English or have limited English

and do not understand what graphs or numbers are attempting to indicate". Perhaps even more problematic, however, is that many community participants noted that they had never before seen, heard of, or received any results from the monitoring program. Community and industry participants both recognized this concern. For example, industry officials expressed that communicating results is where the "break-down of the program" begins and that the main difficulty is "indeed getting the right amount of information to those who are interested in it and we [industry] struggle ensure that we're trying new things all the time to make sure that this can take place". Another industry participant added that the difficulty lies in the industry's lack of confidence that what is being communicated to community representatives is actually being circulated back into the community at large.

Community interviewees suggested that if results were presented in picture or video format, or translated to traditional Dené language, then it would possibly increase local understanding. That being said, some community participants recognized that meetings have been held and often attendance and interest is quite low. Industry participants agreed, suggesting that engaging communities often proves to be difficult. For example, it was stated that "whoever shows up to a northern meeting is entirely whimsical…but there's a limit to how much manipulation you [industry] can apply then and still be credible". One elder acknowledged this claim, stating that "...sometimes it's most of our fault that we don't get information because there has been meetings posted for us to participate regarding the AWG for that meeting but a lot of people doesn't participle in". It is apparent that both parties involved with the Agreement concede that a solution is required for the dissemination of results, and in particular there is a need to improve how those results are shared and communicated so they are understood by and accessible to local stakeholders and elders.

Continuity, coordination, and consultation

A second challenge pertains to the continuity of individuals involved in the monitoring program, and on the AWG Board. There is general consensus among industry, community, and consultants that the permanence or stability of individuals involved is quite low, often causing some confusion for both industry and community members and a break-down in communication and understanding of issues. This becomes a challenge when people are conveying their concerns to those who they believe to be the appropriate individual, group, or committee, but in many cases concerns may never actually be heard as these members may no longer be involved with the AWG membership. A consultant described this as "moving targets from the community-side" stating that there appeared to be "a roll-over of members" where a new community member always seemed to be on a committee, and there is a lack of consistency of community members who attend AWG meetings. One elder expressed similar frustration, suggesting that overall too many different groups and committees existed and this was leading to failures in communication as "...everything falls apart because everyone thinks well, they're looking after that".

The issue here largely stems from having too many different people and sub-committees involved in the monitoring program and Agreement, and not enough continuity or awareness of membership. It was interesting to note that one industry representative felt that at times a limited understanding also exists within the industry itself, which may result from a turn-over of employees as well. This participant believed that this may affect how some things are effectively managed periodically, but overall felt that many people in the company were knowledgeable and well-informed on the Agreement and its related activities, processes, and issues.

While having too many people involved was a concern for many participants, two elders raised concern about not having the right people involved. The two participants suggested that

no real consultation was taking place at the community level, notwithstanding community representation on the AWG and member participation in the monitoring program. These elders were concerned that their local Board Members sitting on the AWG were "...not doing the job that they're titled to" as "no consultation, sharing, or communication actually occurs". Additionally, they suggested that community elders were not being recognized or held with importance and that "...consultation has not been done with the community members, we're [the community] not aware of what has been happening" regarding the "environment or the Environmental Impact Agreement". In this regard, one elder suggested that the "AWG should be revised and looked at and there should be appointed people to sit on that Board by [community] members". That being said, an industry representative commented that some community members have conveyed to industry that they "...are sick and tired of being consulted...", and that has resulted from the monitoring program, although industry must continue to maintain and earn that trust.

Transparency of the Environmental Agreement

Terminology and the lack of clarity around impact reporting requirements also received some criticism. For example, one industry participant felt that the terminology in the Agreement, particularly which associated with "spill-related events", required some improvement. This interviewee noted that it is not defined in the Agreement how one knows if a spill event has occurred and what the parameters are that define a spill event – the distinction between chronic and acute events, and slow or gradual releasing spills versus single large events. A related issue concerned the potential breach of containments. For instance, if a breach of containment occurred at any mining operation site, and in the event that something should extend beyond the

company's surface lease, not actually reaching the community but still having some type of effect, it was questioned as to whether the community would still have a damage or breach of containment claim and how this would be determined. It was further noted that "communication of an impact or event [to communities] requires more clarification" as it is difficult to determine what constitutes an "event". This concern was similarly voiced by a number of community interviewees, noting that they had heard of events and spills taking place but had never been informed of them, and never heard of any monitoring or clean-up initiatives. While it was affirmed by all industry, government, and consultant participants that no impacts have been detected downstream, local communities are aware of events occurring upstream at mine sites. Issues around the nature of event reporting is a source of suspicion and scepticism in the community with regard to industry reporting practices.

On-going review and transformation

A final theme that emerged was that the Environmental Agreement itself needed to be revisited and potentially revised. Industry representatives felt that the Agreement had been in place for a substantial time period, and that it was time to turn back and ensure that the interests of both parties are still being represented. Some industry officials questioned whether the monitoring program actually needed to continue as no impacts had been detected from the program, but conceded that since it was something that communities still requested then it still held significance in terms of comfort and reassurance that no off-site adverse environmental effects were occurring. Elders from the Athabasca communities suggested that both the Agreement and the AWG required revisions. Specifically, greater community consultation and involvement in decision-making was required, and the structure of the AWG should be re-organized to include greater input from elders by way of direct membership and participation on the AWG Board.

Some community representatives felt that long-term cumulative impacts and decommissioning of mine sites should be explored in greater detail. Others emphasized that it was now time to re-examine ideas such as benefit-sharing, First Nations as shareholders, and local stakeholders as receiving revenues and royalties as part of the next generation of negotiated Agreements.

3.5 Observations and Conclusion

Privatized agreements are becoming commonplace in resource development. This is particularly the case in Canada's northern mining industry where private partnerships, processes, and programs are increasingly established and implemented amongst the mining industry and local stakeholders. Several studies (e.g. Prno and Bradshaw, 2008; Galbraith et al., 2007; O'Faircheallaigh, 2007; Dryer and Meyers, 2004; Sosa and Keenan, 2001) have reported on the scope of these privatized agreements, noting their attention to a diversity of social, economic, and environmental issues largely affecting northern communities and natural resources. That said, the literature on private agreements remains limited and recent, and particularly so within the context of the role of such agreements in post-decision EIA follow-up and effects monitoring programs. By examining the AWG Environmental Agreement in Northern Saskatchewan's uranium industry, this paper attempted to contribute to a better understanding of such Agreements, and particularly whether and how they contribute to EIA follow-up and impact management practices.

Based on the case study results, it is evident that the AWG Environmental Agreement supports EIA follow-up and post-development monitoring procedures. Nonetheless, follow-up and monitoring under the AWG Environmental Agreement is designed primarily to provide comfort monitoring and reassurance to local communities. While the program adheres to

scientific approaches, such as testing and analytical methods, it does not hold scientific value to industry impact monitoring and regulatory-based EIA follow-up. In addition, the samples from the AWG are taken bi-annually, and are sometimes limited – fish sampling for example generally involves one fish per site; as a result, the program does not hold any real scientific rigour or merit when compared to industry follow-up programs. As sample locations are situated far downstream from mining operations and facilities, no environmental effects have been detected within the vicinity of the northern communities to date.

Consistent with O'Faircheallaigh (2007), the Environmental Agreement and monitoring program does supplement the existing regulatory and industry environmental management regimes. However, the off-site comfort monitoring carried out under the community monitoring program does not play an immediate role in EIA follow-up – at least in terms of direct industry regulation, or effects management decision making; neither does it have the capacity to replace any of the existing elements of impact management or compliance-based EIA follow-up programs. Findings from the AWG case do not suggest a direct link between the rise of privatized agreements and the design and practice of EIA follow-up and effects management practices, nor do they indicate that the Environmental Agreement deliberately serves to offset failings in the design and practice of post-decision monitoring in the northern Saskatchewan EIA process. Rather, monitoring under the Agreement primarily serves to provide comfort and assurance to local stakeholders that no adverse environmental effects are taking place at the community level.

That said, the Agreement does assist in accommodating and accounting for some of the gaps that conventional EIA follow-up and monitoring structures have difficulty in filling. As EIA follow-up and regulatory processes continue to evolve from "...regulator-driven compliance-

based approaches to a state of following-up for environmental management, with an increase in overall involvement communication among all stakeholders..." (Morrison-Saunders and Arts, 2005), there is an important role to be played by Environmental Agreements, such as in the Athabasca case, and associated community-based monitoring programs and partnerships.

From a follow-up perspective, and consistent with literature on privatized agreements from elsewhere (see Prno and Bradshaw, 2008; Galbraith et al., 2007; O'Faircheallaigh, 2007), of notable benefit are increased levels of communication between local communities and the mining sector, building and establishing relationships among community and industry, greater involvement and participation in overall industry environmental planning and management processes, improved community awareness regarding mining operations, and comfort that no measurable environmental effects are occurring downstream within the vicinity of local communities. In other words, this form of comfort monitoring does play a significant role in bridging community and industry, and in improving industry image. Although lacking the science for formal impact management purposes, the Agreement indirectly supports and assists in EIA follow-up and industry impact management and operations.

Notwithstanding the benefits of Environmental Agreements, challenges do exist. Based on the case study, these challenges largely pertain to communication issues; continuity, coordination and consultation; transparency; and the need for on-going review and transformation of the Environmental Agreement. Challenges such as communication may be attributed to language and culture barriers, which further complicate the transmission of data and information from monitoring programs, resulting in knowledge gaps and uncertainty amongst communities about the effects of mining operations. These challenges are not unique to Environmental Agreements, but are ones that have plagued follow-up and EIA in general for some time. Like any good

follow-up program, the nature and scope of monitoring and follow-up under privatized agreements, and Environmental Agreements themselves, must be adaptive as new knowledge is gained and as expectations and objectives about industry and environmental performance and impact management change.

3.5.1 Conclusion

Privatized agreements are increasingly implemented and utilized in an attempt to effectively manage the environment while at the same time build relationships and trust between industry and local communities. These agreements have emerged as a unique tool, extensively "...used as a basis for addressing conflicts (or potential conflicts) arising from resource development on the traditional lands of Indigenous peoples" (O'Faircheallaigh, 2002: 1), and therefore have a valuable role in the realm of environmental management and decision-making from a proponent and community perspective. Privatized agreements are slowly being regarded as the "next phase" in EIA and northern development, and a standard means to partner with communities in the process of resource extraction and impact management. In this sense, privatized agreements are a valuable addition to formal EIA follow-up and regulatory processes and procedures; however, at least in the case of Saskatchewan's uranium industry, they may provide little direct scientific value to industry monitoring and impact management programs. Although privatized follow-up and monitoring programs may adhere to the participatory element of good-practice follow-up, their primary purpose is to provide comfort and reassurance to communities. Comfort monitoring may be valuable for bridging community-industry relations, but if such programs are to be credible over the long term there remains a need to ensure that the results from comfort

monitoring are useful for, and integrated with, project effects monitoring and management practices.

In conclusion, this paper suggests that no formal scientific role or relationship exists between Environmental Agreements and industry or regulatory EIA follow-up practices for the purpose of monitoring and management; but such agreements and associated comfort monitoring programs are beneficial and continue to "...play an important role in fostering a collaborative vision for resource development, that in many cases, go beyond conventional E[I]A management" (Fidler and Hitch, 2007: 62). Privatized agreements, partnerships, and processes are slowly becoming a *new* model for mineral development (Fidler and Hitch, 2007). These agreements need to be regarded as a "living process" – they may not have the capacity to replace EIA follow-up, but they do provide valuable and significant advantages to enhance and add value to formal regulatory EIA follow-up and monitoring processes through increased industry-community collaboration and communication. As the pressures of northern development continue to increase, further case study research is required, both in northern Canada and comparative studies from elsewhere, to assess the role of follow-up and monitoring under privatized agreements, and to identify how privatized agreements can better link up with and enhance post-decision EIA follow-up and impact management practices – a component of the EIA process that is often missing, or weak at best.

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CHAPTER 4

CONCLUSION

4.1 Introduction

EIA and post-decision follow-up are now familiar concepts in Canada's northern mining industry, and the state of development of the industry has experienced significant changes since these concepts were first introduced. All northern Canadian resource development activity has undergone a transformation process through environmental legislation and involvement with stakeholders and the local public. These processes have not only shaped the present state of development and EIA, but will likely continue to inform future practices. Of particular interest in recent years, however, is the rise of Environmental Agreements. Privatized arrangements between communities and industries focus on project impact mitigation, monitoring, and follow-up (Galbraith et al., 2007). Covering the entirety of a project, including construction, operation, rehabilitation, and decommission, these agreements seek to facilitate the participation of Aboriginal Peoples, governments, and resource developers in the environmental management of projects in ways that do not occur under existing regulatory regimes (O'Faircheallaigh, 2007). Privatized agreements may possess the potential to contribute to EIA follow-up – a practice that, although widely recognized, is reported to be less than satisfactory and weak in implementation.

This thesis intended to advance current knowledge and understanding on a contemporary research challenge in Canada's northern resource development sector: the role and contribution of privatized agreements in EIA follow-up and impact management practices. In order to accomplish this, the uranium mining industry in northern Saskatchewan's Athabasca Basin was adopted as a case study. Based on the case study, this thesis set out to:

(1) examine the institutional development of EIA follow-up and its changing roles and stakes; and

(2) examine the role and contribution of community-based Environmental Agreements to EIA follow-up and impact management practices.

4.2 Institutional development and changing roles and stakes of EIA follow-up

The institutional development of EIA follow-up in Saskatchewan's uranium industry has experienced transformation and evolution, distinguished best as one of discontinuity. Consistent with literature (e.g. Marshall *et al.* 2005, Morrison-Saunders and Arts, 2005, Noble and Storey, 2005), the findings from this thesis suggest that the primary focus of EIA follow-up has experienced two broad shifts, which include an emphasis on environmental management, and incorporating a 'community-centric' approach, where greater communication among local stakeholders and proponents regarding development projects is now being conducted. Furthermore, while past monitoring programs predominantly concentrated on biophysical effects and compliance monitoring, the Athabasca case study indicates that socioeconomic effects and issues are increasingly being recognized and incorporated into monitoring programs.

In addition to changes in follow-up programs, the findings from this case study also indicate a transformation in roles and stakes of the parties involved in follow-up. Both the community and industry have increased their presence and involvement in follow-up and monitoring programs. Through various partnerships, committees, and groups, many northern communities now play a greater role in environmental regulation of industry development through these privatized agreements. As the importance of corporate and social responsibility in the mining sector has increased, industry has emerged with a much stronger role and stake in follow-up and monitoring programs.

This transformation of follow-up can be categorized into four timeframes, ranging from little or no follow-up to a system that now includes a participatory yet privatized process encompassing privatized agreements between community and industry focusing on both community-based biophysical effects monitoring and community impact benefit monitoring. While this recent privatized system may be the new form of impact management in the northern mining development sector, these agreements remain confidential and little is known about their role in and contribution to effective EIA follow-up and impact management practices.

4.3 Role and contribution of Environmental Agreements to EIA follow-up

Results from the northern Saskatchewan's uranium mining industry indicate that privatized Environmental Agreements and community-led monitoring programs both complement and supplement formal EIA follow-up processes and procedures through enhanced communication and relationship building between First Nations and industry proponents. As such, these privatized agreements do have the potential to contribute to improved industry practices. That said, from a science and impact management perspective, Environmental Agreements are primarily utilized as comfort monitoring mechanisms to provide assurance to communities and local stakeholders that no environmental impacts are occurring off-site from mining operations. These monitoring programs lack in scientific value to industry monitoring and to regulatory-based EIA follow-up. As a result, these privatized agreements do not play a direct role in EIA follow-up monitoring per se, nor do they possess the potential to formally replace any aspect of it. Further, the AWG case study does not necessarily suggest a direct link between the rise of privatized agreements and the design and practice of EIA follow-up and impact management practices, nor does it indicate that the Environmental Agreement deliberately serves to offset

failings in the design and practice of post-decision monitoring in the northern Saskatchewan EIA process.

Notwithstanding the comfort monitoring aspect, and the lack of scientific value and direct relationship to EIA follow-up, the AWG Environmental Agreement does provide a variety of benefits which assist in strengthening certain areas where conventional follow-up remains weak. Consistent with the literature on privatized agreements (see Prno and Bradshaw, 2008; Fidler and Hitch, 2007; Galbraith et al., 2007; O'Fairchellaigh, 2007), these benefits include, but are not limited to: bridging community and industry, building partnerships, transferring knowledge, and improving industry image. A number of challenges do remain, however, in linking up Environmental Agreements and monitoring programs with EIA follow-up, including issues related to communication of monitoring program results; coordination, commitment, and communication; transparency of the Environmental Agreement; and the need for on-going review and transformation of the Agreement itself.

4.4 Conclusion

Environmental Impact Assessment in the Canadian north is now better regulated and has a clearer division of authority than when it was first introduced. However, EIA remains a very restrictive process and practitioners must determine which approach or avenues must be taken to effectively contribute to northern resource development and impact management. While communication, education, cooperative environmental decision-making, and diversification at both the stakeholder and proponent level are now recognized as important elements in northern resource development and in Canadian EIA, effective implementation and integration of these concepts continue to move at a slow pace and are regarded as a continual struggle (Veiga et al.,

2001). Furthermore, although both formal follow-up and Environmental Agreements have progressed in the areas of biophysical effects monitoring and community vitality monitoring, improvement is still required. There is every reason to expect continual process development in northern EIA, but experience suggests that it will continue to occur inconsistently and unevenly (Mulvihill and Baker, 2001).

Based on the case study of uranium mining in the Athabasca Basin, this thesis indicates that EIA follow-up has indeed evolved and that part of this evolution is an emergence of privatization. Privatized Environmental Agreements are relatively new in Canada's northern resource sector and only recently have they begun to receive attention from the research community, and in particular, from the EIA community. Given the private nature of these agreements, they are difficult to assess and there is limited knowledge of their efficacy and the role they play in formal EIA regulatory follow-up and impact management processes.

The results and observations of this thesis point to several research areas where additional inquiry would contribute to the understanding of EIA follow-up and privatized agreements. This work is just one example of follow-up and monitoring under privatized agreements supporting the hypothesis that these agreements do not support directly follow-up under the regulatory EIA process, but do provide particular benefits to follow-up processes. Privatized agreements do not have the capacity to replace EIA follow-up. While these agreements are increasingly being utilized in efforts to incorporate collaborative and participatory approaches among industry and local communities, they remain confidential and are strictly an industry-led initiative with limited to no government involvement. It is suggested here that additional case study research is required in northern Canada and abroad to further explore and advance the current and potential

role of these Agreements in facilitating EIA follow-up – a component of EIA that is essential to impact management, yet rarely done and rarely done well.

There also emerges, however, a much broader question concerning privatized agreements – that is, whether they should even be utilized at all in the context of EIA follow-up. While agreements undoubtedly are beneficial and are able to assist in filling some gaps that formal processes continue to struggle with, as privatized agreements they are removed from the public processes and not subject to broader public debate or scrutiny as is follow-up under the regulatory EIA process. Without knowing whether follow-up and monitoring programs under these agreements actually adhere to the principles or intent that formal follow-up and impact management practices strive for, it may be questioned whether privatized monitoring approaches enhance the EIA process at all. It is assumed, however, that some advancement in these particular areas will be achieved as research continues to advance on privatized agreements through efforts, in part, led by the Canadian IBA Network.

To conclude, privatized agreements continue to be utilized as a standard method of conducting business in northern Canada between industry and communities. As such, there is a continued need to assess their contributions to and the role they can or should play in formal EIA processes. Recognizing the confidential nature of and limited research about these agreements, knowledge and understanding remain a challenge. This research complemented previous studies on privatized agreements, but differed in its explicit attention to how privatized Environmental Agreements contributed to formal EIA follow-up and impact management processes. Further case study research is recommended in northern Canada and abroad, concerning the potential role of these agreements in facilitating EIA follow-up. In doing so, this will not only ensure

some consistency of findings and conclusions, but it may also help improve current and future post-decision follow-up and impact management practices in the Canadian north.

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