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**An Institutional Analysis of
Oil and Gas Sector Development and Environmental
Management in the Yukon Territory**

By

Jason C. May

Bachelor of Arts Hon. (Geography), Saint Mary's University, 2005

THESIS

Submitted to the Department of Geography and Environmental Studies
In partial fulfillment of the requirements
For the Master of Environmental Studies Degree
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Abstract

This thesis investigates the ways in which oil and gas development priorities and concern for the environment are integrated within strategic planning and management frameworks, and how associated conflict is addressed, in a case study of the Yukon. Because substantial ground-based oil and gas activity is yet to occur in the territory, a thorough understanding of the institutions and the institutional arrangements set to govern future oil and gas development is a valuable tool for gauging the capacity to integrate these priorities. Therefore, this thesis employs the Institutional Analysis and Development (IAD) framework to analyze the legislation, regulations, policies, and institutions involved in this process, and to identify present and emerging conflicts. In addition, three theory-based literatures in resource and environmental management (Integrated Management, Adaptive Management, and Conflict Resolution) are identified as pertinent to this topic, and are analyzed and discussed for their applicability and utility within the case study.

As development in the Yukon oil and gas sector moves toward more advanced and active stages, it can be assumed that local and regional scale conflicts will arise in response to pressures put on the environment. If this assumption proves true, then planners and decision-makers would be well advised to consider and incorporate strategic mechanisms which acknowledge and integrate multiple priorities as a means of addressing and reducing conflict. Because the oil and gas sector is currently in a formative stage in the Yukon, the present moment may be quite opportune for implementations of this sort.

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List of Abbreviations

ADR	Alternative Dispute Resolution
BMP	Best Management Practice
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CPAWS	(Yukon Chapter of the) Canadian Parks and Wilderness Society
CYFN	Council of Yukon First Nations
CYI	Council for Yukon Indians
DIAND	Department of Indian Affairs and Northern Development
ECO	Executive Council Office (of the YTG)
EMR	(YTG Department of) Energy, Mines and Resources
ESSIM	Eastern Scotian Shelf Integrated Management (Initiative and/or Forum)
FN	First Nation
FNFA	First Nation Final Agreement
IAD	Institutional Analysis and Development framework
ICZM	Integrated Coastal Zone Management
IEM	Integrated Environmental Management
IM	Integrated Management
IRM	Integrated Resource Management
IREM	Integrated Resource and Environmental Management
NGO	Non-Governmental Organization
NSTP	Northern Scientific Training Program
NWT	Northwest Territories
REM	Resource and Environmental Management
RLUPC	Regional Land Use Planning Commission
SGA	Self Government Agreement
SI/MAB	Smithsonian Institute Monitoring and Assessment of Biodiversity Program
SPDP	Shell Prospecting and Development Peru
SSHRC	Social Sciences and Humanities Research Council of Canada
TEK	Traditional Ecological Knowledge
UFA	Umbrella Final Agreement
UNCED	United Nations Conference on Environment and Development
WLU	Wilfrid Laurier University
WTAY	Wilderness Tourism Association of the Yukon
YCS	Yukon Conservation Society
YESAA	Yukon Environmental and Socio-economic Assessment Act
YESAB	Yukon Environmental and Socio-economic Assessment Board
YFWMB	Yukon Fish and Wildlife Management Board
YLUPC	Yukon Land Use Planning Council
YOGA	Yukon Oil and Gas Act
YTG	Yukon Territorial Government

1 INTRODUCTION

1.1 Introduction

Oil and gas exploration and development place considerable demands upon the environment in which it is occurring, and carries with it a potential for irreversible alterations to ecological characteristics. Thus, for regions which contain hydrocarbon deposits, the endowment carries real demands with respect to resource and environmental management. From an environmental planning and management perspective, oil and gas development initiatives must, in part, be measured against the potential for adverse environmental impacts, and planned for accordingly. This is not necessarily an easy task. In itself, the mutual consideration of industrial development and environmental protection seems somewhat of a dichotomy, fraught with the potential for conflict; but when this dichotomy is combined with the multiplicity of stakeholders, ambitions, and agendas commonly encountered in oil and gas development and environmental management, complexity is added to conflict potential.

This thesis utilizes the Yukon Territory of Canada as a case study to explore the complexities associated with oil and gas development and environmental management, and to investigate the ways in which these two priorities might be integrated within strategic planning and management frameworks. The justification for the Yukon case study with respect to this topic, the main research question, and

the approach that will be used to address it are described in the following sections of this chapter.

1.2 Statement of Problem

To date, there has been very little oil and gas development activity in the Yukon; however, at the time of writing, there is renewed interest on the part of the Yukon Territorial Government (YTG) to promote activity within the oil and gas sector, and to expand the scope of exploration and development of oil and gas resources within the territory (YTG, 2006a). Much of this interest is in response to rising commodity prices for oil and gas, growth in the continental demand for fossil fuels, the potential development of a gas transmission pipeline from Alaska or the Mackenzie Valley in the Northwest Territories (NWT) to southern Canada and the United States, and the settlement of most land claim agreements (Pembina Institute, 2004).

However, in conjunction with plans to develop the oil and gas sector of the territory, questions and concerns are being raised by various other stakeholders regarding what impact oil and gas development activities will have on the environment of the Yukon, and what mechanisms are in place to protect sensitive northern ecosystems and minimize environmental disturbance and degradation (YFWMB, 2006; CPAWS, 2007a; YCS, 2006). To a degree, attention to these concerns is mandated under the Yukon Oil and Gas Act (*YOGA*), which lists as one of its objectives, “To provide for the economic, orderly, and efficient development in the

public interest of the oil and gas resources of the Yukon consistent with the principles of sustainable development, the maintenance of essential ecological processes, and the preservation of biological diversity by...providing for integrated consideration of environmental and socio-economic effects on oil and gas decision making...” (YTG 2002: 17-18).

Although this objective states that integrated consideration of multiple priorities is to be used in the oil and gas decision-making process as a means to a positive outcome, it does not describe how this integration will be achieved. Furthermore, given that the process of oil and gas development in the Yukon is in its infancy, and that many of the regulations set to govern this process are recent incarnations yet to be utilized, there are relatively few process-based occurrences to be analyzed so far, and the success of integrative efforts remains to be seen in practice. In light of this, this thesis seeks to understand the potential for Yukon legislation, regulations, and planning and management frameworks to work towards the “integrated consideration” referred to in the Act, and to evaluate the way in which these processes work to address environmental conflicts and concerns in the territory.

1.3 Research Question and Objectives

The main question guiding this thesis is, “ What are the strategic ways in which resource development initiatives in the oil and gas sector, and concern for environmental integrity, are being integrated in Yukon planning and management

processes, and how is conflict between these two priorities addressed within current regulatory and management frameworks?”

In the course of addressing the main research question, this thesis has several applied and theoretical objectives to work towards. These are identified as follows:

- To document the unique context of oil and gas development in the Yukon, and associated implications
- To identify the official positions and priorities of key organizations and agencies regarding oil and gas development in the region
- To identify points of conflict and consensus among key organizations and agencies regarding oil and gas development and environmental impacts
- To explore the additional complexities associated with Yukon first nations, with respect to the main research question
- To relate the practical scenario being studied to the larger theoretical body of knowledge in resource and environmental management

The following section describes the conceptual approach that this thesis takes to address the research question and objectives.

1.4 Conceptual Approach

In the past 25 years, great advances have been made toward increasing our understanding of how ecological systems interact, resulting in a heightened awareness among resource and environmental management scholars and practitioners of the

interconnected nature of natural systems and ecosystem functions (Imperial, 1999). It is now widely understood that natural systems, and their management, present complex realities that are seldom effectively addressed by conventional, compartmentalized management approaches (Waltner-Toews, 2004). As a result, the past 15 years have seen the resource and environmental management paradigm steadily shifting away from centralized, unilateral management approaches, toward more holistic management frameworks, with emphasis on multi-stakeholder cooperation and integrated inter-agency frameworks (Slocombe and Dearden, 2002).

As the utility of a broader ecosystem perspective and the use of collaborative decision-making in environmental management become more widely acknowledged, the practicalities of integrated approaches to management are becoming more widely accepted. In fact, Selin and Chavez (1995) note that it is now difficult to find an environmental or land-use planning initiative in North America that does not incorporate some form of collaborative decision-making. However, as institutional integration becomes increasingly entrenched in resource and environmental management, it is becoming more and more important for scholars and practitioners to focus on questions surrounding institutional performance and design (Imperial, 1999). Although integrated approaches are increasingly appealing, and potentially advantageous, to the management of natural resources and environments, they are subject to a number of institutional and administrative challenges (Ascher, 2001). As multiple governance institutions come together to address single topics, the potential for duplication of authority and responsibility increases, as does the potential for

inconsistency of policies and mandates. In addition, non-governmental organizations (NGOs) and not-for-profit agencies are increasingly included as collaborative partners, as opposed to their more traditional roles as opponents and lobbyists, which adds additional complexities to institutional integrative efforts (Imperial, 1999).

In the context of Yukon oil and gas development, management, and decision-making, there is a distinct possibility for these and other institutional challenges to manifest, considering the multiplicity of institutional actors (both governmental and NGO) involved in oil and gas development issues, and the *YOGA* mandate for integrated consideration of environmental impacts in oil and gas decision-making (YTG, 2002a). Therefore, in order to understand the potential for inter-agency conflict with respect to this topic, and to address the main research question, the conceptual approach to this thesis is to identify and document the roles, responsibilities, and agendas of the multiple institutional stakeholders, so that potentially conflicting institutional arrangements can be easily identified and commented upon. The following section explains the methods that are used in this thesis for this purpose.

1.5 Methods

This thesis seeks to identify and understand ways in which industrial development and environmental concerns can be strategically addressed at planning and policy levels. To this end, the methodology that is used can be succinctly described as a comparative analytical case study; comparing contemporary theoretical

knowledge in REM to observed activities in the case study location, and utilizing an analytical framework to identify problems and reach conclusions. In doing so, a specific progression of methods has been adhered to throughout the research process. To begin, it is first important to establish and become familiar with pertinent theoretical background in REM. Therefore, this thesis starts with a literature review to establish the theoretical context. Following the literature review, a detailed investigation of the case study site and situation is conducted to provide the information required to conduct an analysis. This examination entails both document review and on-site interviews with relevant personnel at the case study location. Finally, an analytical framework, which supports the conceptual approach, is applied to the information gathered from the literature review and the case study investigation, from which a discussion and conclusions relating to the research question and objectives are drawn. These methods are described in detail in the following sub-sections.

1.5.1 Overview of Literature Review

Four thematic categories of literature in resource and environmental management are central to this thesis, and are reviewed in the following order. First, the literature concerning *integrated management* is reviewed, to detail the evolution, current status, and prospective directions of integrated management efforts and theories in resource and environmental management. Second, the literature pertaining to *adaptive management* is explored. This literature recognizes that ecological and institutional systems are both dynamic and complex, and that satisfactory

management arrangements are apt to change as system structures themselves change. Therefore, the information contained in this literature is important to establishing institutional and managerial frameworks which can accommodate the inevitability of change. Third, the literature concerning *conflict resolution* is reviewed, as a means of identifying the successes, failures, and common approaches to conflict resolution and mitigation in resource management. Although conflict resolution is pertinent in many resource management situations, the review of this literature will be focused on conflict and conflict resolution in oil and gas management and development, to coincide with the research topic. Finally, this thesis will review the literature dealing with *institutional analysis* in resource and environmental management, to aid in defining and constructing the framework used for the analysis.

1.5.2 Case Study Documents

To coincide with the theoretical foundations established in the literature review, and to contribute to the data needed for the analysis, the case study entails a gathering of information relating to Yukon oil and gas development and environmental management. For this, information is obtained from multiple sources, including peer-reviewed publications, grey literature, and relevant web sites. In this, the literature pertaining to the legislative, regulatory and procedural frameworks for oil and gas development, and environmental protection and management, helps to identify the key agencies and organizations involved, and to reveal the institutional context within which the research question is being considered. In addition, literature and publications which document the breadth and depth of environmental concern

regarding impacts from oil and gas development in the Yukon, are explored. This helps to elucidate the environmental concerns that are of most importance to Yukoners, and to identify key NGOs and other relevant stakeholders.

1.5.3 Fieldwork and Interviews

In order to supplement and verify the information gathered in the review of Yukon environmental and oil and gas literature, a field component was also conducted as a part of the case study methodology. For this component, the researcher traveled to Whitehorse, the capital of the Yukon Territory, for a six-week period in the summer of 2006, to conduct on-site investigations (both documentary and interpersonal). This field research was conducted to gather data and information relating to the question being posed; that is, information useful for elucidating the ways in which resource development priorities in the oil and gas sector, and environmental concerns, are being strategically integrated and dealt with in Yukon planning and management policies and processes.

Preparatory to the field research, and as required by the Wilfrid Laurier University (WLU) Research Ethics Policy, the researcher submitted a proposal to the WLU Research Ethics Board, and had the process and activities of this research project reviewed. The proposal was evaluated, and determined to be ethically sound and in accordance with the university guidelines established for research that involves humans. In addition, an application for licensing to conduct research within the Yukon Territory was filed prior to departure, and the researcher was granted a Yukon

Scientists and Explorers License (# 06-49S&E) by Yukon Tourism and Culture, valid for the period of June 19- August 15, 2006. Primary funding for the field component of this research was made available by the thesis supervisor from his Social Sciences and Humanities Research Council (SSHRC) grant, and travel expenses were supplemented with a Northern Scientific Training Program (NSTP) Research Grant.

Upon arrival in the Yukon, documentary research was conducted at various archival locations in Whitehorse (Yukon Public Archives, Whitehorse Public Library, Yukon Energy, Mines and Resources Library), to take advantage of the content of the holdings. The collections held at these locations were extremely beneficial to this study, as they contain large quantities of local information and data not accessible from outside locations.

Interpersonal information gathering was conducted to document official positions, to discuss the information gathered in document reviews, and to identify additional sources of information. For this portion of the research, interviews were conducted with key informants from the relevant agencies and organizations identified in the case study literature review. The Key informants were first identified by posted contact information on organization web sites and phone directories, and invited by phone and/or email to participate in the interview with the researcher. In addition, the researcher also utilized the snowball method to identify further informants, as all willing participants were asked if they would like to identify other potential interviewees whom they believed to be relevant to the research question. In

agreeing to participate in the interview, key informants were asked to respond to all questions on behalf of their respective organization, and to omit any personal views or opinions that they might have towards the research topic.

Upon receiving signed consent, each interview was conducted using the following methods. The Key informants were consulted in an informal, semi-structured interview, and were asked to allow approximately one hour for responding to the set of questions. In practice, the length of the interviews ranged from 31 minutes to 116 minutes, with an average interview length of 61 minutes. During the course of the interview, participants were asked to draw upon their experience and expertise within their respective sector(s) and locale(s), in response to a ten question prepared protocol (Appendix). The purpose of the protocol was to maintain the focus and direction of the interview process, however, participants were also encouraged to provide and expand upon any point or topic that they deemed relevant to this research, but that was not addressed within the protocol. All questions were posed in an open-ended, conversational format, and participants were not limited in the length of their responses. To ensure accuracy, each participant was asked to allow the audio recording of the interview, and without exception, all respondents consented.

In total, 12 interviews were conducted for this research, with key informants representing the following agencies and organizations: Yukon Energy, Mines and Resources (EMR), Yukon Executive Council Office (ECO), Environment Yukon, Yukon Tourism and Culture, Yukon Land Use Planning Council (YLUPC), Yukon

Environmental and Socio-economic Assessment Board (YESAB), Yukon Fish and Wildlife Management Board (YFWMB), Wilderness Tourism Association of the Yukon (WTAY), Canadian Parks and Wilderness Society-Yukon Chapter (CPAWS), and the Yukon Conservation Society (YCS). Copies of this thesis will be made available to participating organizations and agencies, and to individual participants upon request.

1.5.4 Analytical Framework

In order to bring meaning to the information and data collected within the literature review and the case study relative to the main research question, it is necessary to employ a tool for analysis. In the context of this study, the research focus is devoted to understanding and evaluating the ways in which the institutional actors are aligning themselves, individually and collectively, vis à vis oil and gas development and/or environmental protection. In the absence of actual ground-based oil and gas activity in the Yukon, it can be argued that a thorough understanding of the institutions and the institutional arrangements being set to govern future developments in this forum may be one of the more valuable tools for gauging future issues and outcomes. Fernie and Pitkethly (1985) have argued that institutional arrangements and issues are fundamental to all resource problems, and that institutional solutions ought to be sought in light of this. Similarly, Watson *et al.* (1996) note a common sentiment among REM researchers and practitioners that limitations to institutional capacity, rather than technological or analytical limitations, constitute the major barriers to improved resource planning and management, but that

conversely, institutional factors are often treated only superficially within REM literature.

In this study, there is a focus placed on understanding the motivations of involved institutions and the rules which guide them; a focus which justifies the need for an institutional analysis. Although various definitions for institutional analysis exist, it is essentially the process of analyzing the design and performance of an institutional arrangement, with respect to a common endeavor (Imperial, 1999). This study will employ the Institutional Analysis and Development (IAD) framework, which is an analytical framework developed by scholars at the Workshop in Political Theory and Policy Analysis as a tool for approaching policy research and information dissemination for public goods and common-pool resources (Ostrom, 1990; Ostrom *et al.*, 1994; Rudd, 2004).

The IAD framework is well suited to the purposes of this project, as it facilitates the organization and analysis of policy issues and problems (Rudd, 2004). It has been described as a framework which is particularly well suited to the examination of strategic policy behavior and institutional choice, at the state and local levels, with particular strength in its ability to address the challenges associated with multiple institutional actors and collective action (Schlager and Blomquist, 1996). The IAD framework, and its history, functionalities, and applicability will be explored in depth within the literature review, at which point the general elements of

the framework will also be evaluated and adapted to work for the purposes of this project.

1.6 Anticipated Results

The goal in this study is to provide explanation of how the processes referred to in the research question function in practice, and then to relate this functionality to existing theoretical frameworks in resource and environmental management. It is expected that insights gained into the ways in which (current and emerging) conflict in resource and environmental management is dealt with in the practical sense, will contribute to a broader understanding of the role of integration in resource and environmental management, and to its benefits and limitations. A study such as this is timely, as currently there is increasing desire for development in the Yukon oil and gas sector, and escalating concerns regarding the environmental impacts of development and the equity of policy processes (YTG, 2006; YCS, 2006). History has shown that few issues have the ability to polarize opinion and generate conflict in the way that hydrocarbon development can, at least partially because of the inevitability of some degree of adverse environmental impact in the development process (Pembina Institute, 2004). As development in the Yukon oil and gas sector moves toward more advanced and active stages, it can be assumed that local and regional scale conflicts will arise in response to pressures put on the environment. If this assumption proves true, then planners and decision-makers would be well advised to consider and incorporate strategic mechanisms which acknowledge and integrate multiple priorities as a means of addressing and reducing conflict. Because

the oil and gas sector is currently in a formative (policy and infrastructure) stage in the Yukon, the present moment may be quite opportune for implementations of this sort.

In addition to the practical application of this study in the Yukon context, this thesis is also significant in its exploration and analysis of the ways in which integration, at the strategic level, contributes to addressing broader questions and concerns for the integration of human activity and natural environments. Using the policy and planning processes currently underway within the Yukon oil and gas sector as a reference, this project will contribute to our understanding of the ways in which resource development, environmental integrity, and conflict may be integrated and dealt with in planning and management processes. Put another way, the Yukon case study may be viewed as a microcosm of other integrative resource management issues and processes occurring at multiple scales.

1.7 Thesis Outline

The remainder of this thesis is devoted to addressing the question, goal and objectives described within this chapter. The outline for this presentation is as follows:

Chapter 2 -- Literature Review

In this chapter, theories and principles of integrated management, adaptive management, conflict resolution, and institutional analysis are reviewed and summarized for their purposes within this project.

Chapter 3 -- Case Study Description

This is a descriptive and exploratory chapter of the case study location. Within it, the site and situation of the Yukon are described with respect to the analytical framework, which examines the physical/ecological characteristics, community attributes, and institutions/rules that comprise the territory.

Chapter 4 -- Institutional Analysis

In this chapter, an institutional analysis of the stakeholders and frameworks pertaining to oil and gas development and environmental management in the Yukon is undertaken.

Chapter 5 -- Discussion

Key findings from the institutional analysis are summarized, and the applicability and contribution REM theory to the case study are discussed.

Chapter 6 -- Conclusions

The results and conclusions of the case study are summarized and discussed in the context of the thesis question and objectives. Recommendations resulting from this study are put forth, and opportunities for future research are identified.

2 LITERATURE REVIEW

2.1 Introduction

In order to fully understand the complexities inherent in Yukon Oil and Gas and environmental management, it is important first to understand the theoretical context under which this management is proceeding. Consequently, the purpose of this literature review is to establish the theoretical context for the case study and analysis to follow. Within REM, the fields of study that underlie this thesis primarily include integrated management, adaptive management, and environmental dispute resolution. This review sequentially explores and describes the literatures for each of these fields, and attempts to identify how and where these fields intersect with oil and gas management and development. In addition, this section also includes a review of the institutional analysis literature, in order to establish the analytical framework that is used in this thesis.

2.2 Integrated Management

In recent decades, integration has become both a common theme and an important element within environmental and resource management (Margerum, 2001; Argent *et al.*, 1999). The main reason for this is commonly attributed to failings in past environmental management approaches. Traditionally, environment and resource management efforts tended to utilize single-focus approaches and failed to address the complexities, interconnections, multiple perspectives, and multiple uses

inherent in human and environmental systems (Margerum and Born, 1995). It is now widely accepted that REM outcomes tend to improve when those involved in management activities integrate and coordinate their activities with one another, and consider whole systems rather than isolated components in their approach (Hooper *et al.*, 1999; Margerum, 1999). Integrated Management (IM) is a holistic approach to resource and environmental planning and management that encourages practitioners to consider multiple social, economic, biophysical, and environmental interconnections (Margerum and Hooper, 2001).

Today, IM is a managerial concept that holds much credibility in academic, professional, and political sectors, and has moved to the forefront of discussion as decision-makers move to improve upon past, fragmented management efforts (Argent *et al.*, 1999). Margerum and Hooper (2001) argue that there are three key reasons that IM has steadily emerged to become a new paradigm in REM. First, as was previously mentioned, traditional approaches have tended to be reactive and disjointed, and have been conducted within limited scope and scale. Second, many environmental problems and issues are characterized by high degrees of complexity, or are what Rittel and Webber (1973) refer to as “wicked” problems. These sorts of problems emerge from the interrelationships and interconnections between multiple involved systems, (such as biophysical, economic, social, political, and geophysical systems), and therefore cannot be solved by approaching any one system in isolation. Third, conflict is increasingly becoming an issue in REM, as increasing demands for resources and environmental services intersect with resource scarcity and

environmental stress. More and more, decision-makers are finding it difficult to make resource and environmental management decisions without incurring conflict in some form (Mitchell, 1990).

These three reasons begin to make clear the need for an integrated approach in REM, however, they do not concisely define what IM is. It is important at this point that the operational definition of IM be explored and made clear for its purposes within this thesis.

2.2.1 Defining and Conceptualizing IM

It is of consequence to clarify what is meant by the term IM within this thesis, as there has been much written on it within the literature. Prior to this however, it is also important to explain that within the literature similar integrated approaches to management are often catalogued under several different titles, including Integrated Environmental Management (IEM), Integrated Resource Management (IRM), and Integrated Resource and Environmental Management (IREM). In practice, the title used is typically indicative of the context within which the integrative approach is to be applied. For instance, IEM may be more fitting for a conservation-oriented multi-stakeholder species management strategy, whereas IRM may better describe integrative efforts in forest management. Although it may be possible to identify subtle connotative differences between these titles, they certainly share far more similarities with one another than differences. Therefore, to avoid confusion and

definitional debate, this paper employs the more inclusive term of integrated (or integrative) management to describe this managerial concept.

IM is a concept with wide applicability in REM, and as is often the case with such concepts, a single, succinct definition is neither practical nor comprehensive. In part, the elusiveness of a single definition for IM is a function of the multiple origins of IM in practice. Many definitions of IM approaches have emerged and evolved from various countries, contexts, and jurisdictions (Hooper *et al.*, 1999). In fact, Watson *et al.* (1996) note that integration in natural resource management emerged as early as seventy years ago, when comprehensive river valley development was being undertaken in the United States. Since this time, there have been multiple interpretations of integration in REM across several fields of study. These fields include: comprehensive river basin management, multiple use land resources management, integrated watershed management, collaborative planning, integrated coastal zone management, ecosystem management, integrated area development, environmental impact assessment, total catchment management, coordinated management, comprehensive land-use planning, and strategic and interactive management (Margerum and Hooper, 2001; Hooper *et al.*, 1999; Margerum, 2001; Born and Sonzogni, 1995). Despite the seeming comprehensiveness of the preceding list, it is not complete. In fact, Downs *et al.* (1991) were able to provide 36 examples of integrated REM approaches.

Given the diversity of REM fields in which integrated approaches have been applied (both conceptually and procedurally), it is not surprising that a single operational definition could be contentious. Instead, it may be more productive and insightful to define IM through an understanding of the common elements among the listed approaches. In this respect, Hooper *et al.* (1999: 748) state that the common theme among the diverse applications of integration is, "...the need for coordination and the use of an ecosystem approach for natural resource and environmental management." Similarly, Watson *et al.* (1996: 46-47) argue that IM, "...involves the development of coordinated or linked arrangements for decision-making with the aim of reducing resource conflicts and, where necessary, resolving them."

Expanding on the points found in the above descriptions, Born and Sonzogni (1995) argue that the following conditions capture the essence of IM:

- The coordination of all human activities in a particular environmental system to facilitate a broad range of short and long-term objectives
- A process for constructing and implementing a means to achieve specific objectives, while considering relevant social, political, economic, and institutional factors
- An inclusive approach which is cognizant of human and environmental spatial and temporal scales
- A strategic and interactive process which identifies and acts upon key elements and goals using an interorganizational and coordinated approach

Similarly, Bellamy and Johnson (2000) argue that the fundamental properties of the IM paradigm include:

- An integrated systems approach which can recognize and address nonlinear processes, connectivity among problems, and the presence of complexity in and among human and environmental systems
- A long-term perspective, and the incorporation of multiple spatial scales
- Recognition of humans (and their associated cultures, values, and norms) as an integral component in REM problems and management issues, as opposed to being external from them
- The necessity of coordination among stakeholders (i.e. government, industry, community) for effective and equitable decision-making
- Inclusive stakeholder strategies for resolving conflict

From the preceding listing of the common elements found in IM, it is possible to identify a set of core characteristics which comprise the theoretical foundations of integration in REM. Table 1 presents these core characteristics, as extracted from the review of the literature thus far. Essentially, they describe IM as a managerial concept predicated on holistic, adaptive, collaborative approaches.

Table 1: Core Characteristics found within IM Conceptualizations

Conceptual Characteristics
Coordination and cooperation among stakeholders
Consideration across spatial scales (local, regional, national, international)
Consideration across temporal scales (short and long-term)
Accommodation of complexity and change
Strategy for conflict resolution

These characteristics provide a broad description of the conceptual construction of IM, and could henceforth be utilized as evaluative criteria for the purposes of this research project. Insofar as a working definition is concerned, in the context of this research project, integration is being considered at the institutional level for the purposes of integrating oil and gas development and environmental management. Therefore, a description offered by Mitchell (1986: 13) works for the purposes of this thesis, where he operationally defines IM as, "... the sharing and coordination of the values and inputs of a broad range of agencies, public and other interests when conceiving, designing and implementing policies, programs or projects."

2.2.2 Operationalizing IM

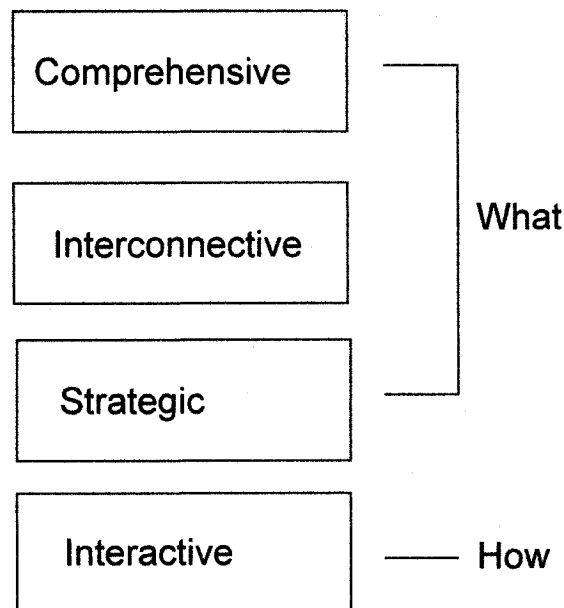
In the IM literature, there seem to be two primary foci: that which addresses the "what" questions (i.e. the theory, concepts, and foundations of the IM approach), and that which addresses the "how" questions (i.e. processes, frameworks, and examples of implementation). And although the "what" can be differentiated from the "how" for the purposes of academic discourse, in practice they are seemingly inseparable from one another, and together form the integrative framework. This is effectively illustrated by the outline put forth by Slocombe (1993), which presents the basic characteristics of an integrative framework (Table 2).

Table 2: Basic Characteristics of an Integrative Framework

Substantive Characteristics	Process Characteristics
Inter- or transdisciplinary Uses a systems approach to describe structure, process, and dynamics Uses multiple theories and methods Adaptive, using monitoring and evaluation to gather and assess info Generating hypotheses and models Future, long-term oriented	Participatory Seeks individual and institutional cooperation and integration Defining and moving toward goals Facilitating dissemination and use of information

From: Slocombe, 1993

In this table, Slocombe divides the integrative framework into substantive characteristics, which are the defining elements of IM and address the “what” questions, and the process characteristics, which are the procedural approaches of IM and address the “how” questions. This distinction is echoed by Born and Sonzogni (1995), in their conceptual framework for IM (Figure 1).

Figure 1: IM Conceptual Framework

Adapted from: Born and Sonzogni, 1995

In this framework, Born and Sonzogni (1995) reduce IM to four characteristics: (1) *Comprehensive* -- implying a high degree of inclusiveness among the actors involved in planning and management efforts (2) *Interconnective* -- addressing interrelationships and linkages among the many entities that comprise the topic of interest (3) *Strategic* -- implying the need to identify and focus on key aspects of the problem, and to selectively target critical tasks and issues to achieve goals (4) *Interactive* -- describing the way in which the concept of IM must be executed, because of the way that information is dispersed among various stakeholders. In this framework, the first three characteristics pertain to the “what” of IM, and the last to the “how”.

The distinction between the “what” and the “how” characteristics of IM is important; primarily, it allows the task of implementing IM to be simplified, by differentiating the requisite conceptual characteristics of IM from the procedural requirements of operationalization. Potentially this allows stakeholders a better understanding of what is required in order to structure their actions to fit with the integrative management philosophy, and then to effectively coordinate their actions with other stakeholders in an integrative fashion. Put another way, appropriate institutional structuring needs to occur in order to facilitate interorganizational coordination. It is important to recognize that these are two separate tasks, but that both are necessary if true integration among stakeholders is to be operationalized. Institutions need to be strengthened in order to shoulder the new tasks and responsibilities associated with intra-institutional working arrangements (Chufamane

and Lonholdt, 2001). Mackenzie (1997) notes that this can be particularly problematic in the governmental context, as the fragmented process and structures of most contemporary public agencies impede the ability to achieve integration. The segmentation of REM management into separate divisions (such as water, forestry, oil and gas), with each department guided by separate legislation, promotes a stovepipe approach to management which is not compatible with IM frameworks and philosophies (Mackenzie, 1997).

The literature demonstrates that in the transition from theory to practice, three key elements emerge. First, although we can discuss IM separately in terms of its theory and its practice, a complete operational framework is inclusive both of substantive and process characteristics (Slocombe, 1993; Born and Sonzogni, 1995; Margerum and Born, 2000). The two cannot be separated from each other. In other words, if the “how” is to be achieved, the “what” must be first understood and implemented. Thus, there must be recognition by participants that in addition to exchanging information externally with other stakeholders, they must be capable of making necessary internal adjustments to synchronize with this new *modus operandi*.

Second, from a procedural perspective, the key recurrent themes in implementing IM tend to center around the concept of planned stakeholder inclusion and interaction. This is exemplified by Slocombe (1993) with the identification of “participatory approaches” and “individual and institutional cooperation and integration” as process characteristics of an integrated approach (Table 2). Born and

Sonzogni (1995) use the term “interactive” to define this concept (Figure 1). In fact, owing to the inclusion of multiple stakeholders and multiple perspectives in the process, Margerum and Born (1995: 377) state that, “...the key operational component to achieving integration is interaction through a process of planned change”.

Third, it is widely recognized that despite the integrative intentions of stakeholders, the very presence of multiple participants with various backgrounds and agendas means that there always exists a probability of conflict among stakeholders. Many problems that deal with resource development and/or environmental degradation touch on the interests of many different stakeholders, and these interests are often in conflict with one another (Hooper *et al.*, 1999; Diduck, 2004). Indeed, there exists the potential for participants and decision-makers to spend more time engaged with conflict or dispute resolution than in the actual management of the environment and/or resources. Therefore, if it is to be effective and not paralyzed by argument, capacity must be incorporated into IM approaches to deal with the resolution of conflict (Hooper *et al.*, 1999).

Up to this point, the IM framework has been discussed as a theory and a process. However, a main focus of this project is to identify how this framework might work in the context of oil and gas development. In doing so, any past research contributions that relate IM to oil and gas development would be potential assets. The following section summarizes such literature.

2.2.3 IM in Oil and Gas

The concept of integration in environmental and resource management has been widely applied within the literature to a variety of resource management situations. For example, integration has long been discussed in the context of forest management, for the attainment of multiple forest objectives, such as carbon sequestration, sustainable development, and biodiversity conservation (Cairns and Meganck, 2006). Integrated management has also been applied quite widely to watersheds and water resource management, as a framework for incorporating the wide array of stakeholders that exist within catchment areas (Mitchell and Hollick, 1993).

In the context of oil and gas, the petroleum industry has applied integration to many aspects of oil and gas development. For example, integrated petroleum reservoir management has received a significant amount of attention in recent times (Satter and Thakur, 1994; Bigelow, 1994). This spawned from the need to enhance the recovery of oil in remaining older reserves, due to increased scarcity of hydrocarbons and global competition. Integrated petroleum reservoir management has prompted petroleum producers to increase synergies with actors in engineering and the geosciences, where data gathering and technical engineering traditionally occurred independently of one another (Satter and Thakur, 1994). Integration has also been discussed in the oil and gas sector in the context of exploration drilling, where the integration of multiple components (such as service suppliers, risk

assessors, and drilling contractors) is increasingly seen as key in the successful execution of exploratory wells (Thorogood *et al.*, 2000).

However, in the examples discussed above, the integrative efforts in the oil and gas sector toward development differ from those of other resources management efforts in that they are principally inclusive of development proponents only. In the context of the integration of oil and gas development with the broader mandate of environmental management and protection (a forum which would, in all probability, need to be inclusive of opponents as well as proponents), pertinent literature is virtually non-existent. There seems to be one exception to this however, in the field of integrated coastal zone management (ICZM). In ICZM, the management of offshore drilling operations occurs prominently in the discourse, as a factor in intersectoral integration (integration among coastal and marine sectors, such as offshore and coastal fisheries, recreation and leisure, and oil and gas) (Cicin-Sain *et al.*, 2000).

Integration became a central concept among national coastal jurisdictions worldwide, when it was adopted in June of 1992 under Chapter 17 of Agenda 21 at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro (Cicin-Sain *et al.*, 2000; Lawrence, 1997; Foster *et al.*, 2005; Rutherford *et al.*, 2005). Since UNCED, ICZM has acted as an organizing framework in many international ocean and coastal agreements and legislations, including Canada's *Oceans Act* (Eddy *et al.*, 2002). The *Oceans Act* states that, "...the Minister shall

lead and facilitate the development and implementation of plans for the integrated management of all activities or measures in or affecting estuaries, coastal waters and marine waters that form part of Canada...” (Canada, 1997: Section 31, paragraph 31). Furthermore, the *Oceans Act* states that integrated management planning be conducted, “...in collaboration with other ministers, boards and agencies of the Government of Canada, with provincial and territorial governments and with affected aboriginal organizations, coastal communities and other persons and bodies, including those bodies established under land claims agreements” (Canada, 1997: Section 31, paragraph 29). This statement, which categorically lists stakeholders to be included in IM planning may, in part, be consequential to the relative abundance of literature and activity pertaining to integrated environmental management in off-shore oil and gas sectors, as compared to its terrestrial counterpart. Not only does the *Oceans Act* specify that the IM approach is to be utilized, it also specifies the participants critical to the process. The inclusion of this directive in the legislation could certainly be influential in prompting integration among those stakeholders, where it might not have otherwise occurred.

A working example of this effectiveness is seen in the Eastern Scotian Shelf Integrated Management (ESSIM) Initiative, which was the first planning process under the guidance of Canada’s *Oceans Act* (Foster *et al.*, 2005). ESSIM seeks to integrate the management of offshore activities in the eastern Scotian Shelf offshore area off Nova Scotia (Foster *et al.*, 2005). This area was selected for IM because of its high biodiversity levels, its abundance of living and non-living marine resources,

and the high levels of competition and use within it for ocean space and resources, which includes offshore oil and gas interests, fisheries, shipping, maritime defense, science, research and development, potential offshore mineral development, and marine conservation efforts (Rutherford *et al.*, 2005). Under the ESSIM framework, representatives from federal, provincial, municipal, and First Nations governments, ocean industries, community interests, NGOs, researchers and developers, and the general public are brought together to participate, communicate and collaborate through the ESSIM Forum, which is described as a networked structure and a collaborative process (Rutherford *et al.*, 2005).

The *Oceans Act*, and the resulting ESSIM process illustrate the potential for IM when specific direction on who should be included in the process is provided by effective legislation. Essentially, this provides an answer to the critical “who is included in IM” question, which may contribute to facilitating the process.

As this review of IM has shown, if integration is to be achieved in oil and gas decision-making, there are a number of challenges that will have to be overcome. First, participating stakeholders will need to be identified. Among the participating stakeholders, internal alterations and accommodations will be required to facilitate the integration of external information and perspectives into operational protocols. Finally, an effective framework for facilitating inter-organizational communication and collaboration will be required, with a strategy for addressing and resolving conflict.

In addressing these challenges, there is one critical variable which, if ignored, could potentially negate all efforts; this variable is change. It is critical to recognize that the stakeholders of today are not necessarily those of tomorrow. Likewise, institutional reforms that fit the current context are not guaranteed to work in future circumstances. Environments, issues, agendas, and participants are all apt to change with time; in fact, dynamics are one of the few certainties available in REM. Therefore, if future obsolescence is to be avoided, it is critical that REM planning efforts not be constructed in a static fashion. Rather, the ability to adapt to changing circumstances should be stressed in planning efforts. The following section will review the literature on adaptive approaches in REM, and will relate this body of knowledge to the closely related topic of IM.

2.3 Adaptive Management

In the preceding section, it was stated that change is a constant factor in environmental systems, and should come to be anticipated in planning and management efforts. Additionally, and functioning concomitantly, it is important to understand that change is also coupled with another confounding factor; this factor is uncertainty. Put plainly, as our knowledge of the complexities and dynamics of environmental systems increases, so too are we constantly reminded of the limitations of our knowledge (Noble, 2004). Over time, advances and increasing sophistication in science and ecology have demonstrated that much of what we, in the past, have held to be true is often found to be either partially or completely false. This should also caution us of being too accepting of what we purport to be true today, as we can

also infer that the truths of today may suffer a similar fate tomorrow. In addition, we must remember we are constructing a knowledge base to represent systems which are constantly changing. So even if our knowledge of today's environmental systems were flawless, the unerring nature of this knowledge would be apt to change as the environment itself changes.

Adaptive environmental management (AM) is a management approach that presents an alternative to traditional strategies of attempting to control environmental systems in REM; strategies which ignore the factors of change and uncertainty (Noble, 2004). Instead, AM encourages managers and decision-makers to proceed with planning, policy, and regulation under the expectation that they may be incorrect in their approach, but that information gained and lessons learned from each attempt will enable continual improvements in future iterations (Noble, 2004).

The following sections of this literature review will explore the theoretical and practical presentations of AM in the literature, and will describe the relevance of this approach in the context of this thesis. To begin, the following section will define the AM approach, document its emergence, and provide explanation of its conceptual framework.

2.3.1 Defining and Conceptualizing AM

The term "adaptive management" first began to appear in the REM literature in the mid-1970s (McLean and Lee, 1996; Meretsky *et al.*, 2000). Sabine *et al.*

(2004) note that the first synthesis of AM came in response to the increasing realization that natural resources were becoming increasingly limited, and that scarcity would eventually become an issue. In response, there was an emerging need for environmental management approaches to address the issue of sustainability, and to be reflective of the changing state of the environment (Haney and Power, 1996; Briassoulis, 1989). Since this time, AM has experienced many different incarnations, and has become a term which is sometimes used quite loosely. It is often referred to as “learning by doing”, but it should not be mistaken as an *ad hoc* approach to changing management strategies (Walters and Holling, 1990). Far from being haphazard, Nyberg and Taylor (1995: 241) define AM as, “...a formal process for continually improving management policies and practices, by learning from the outcomes of operational programs.” The progressive development and multiple incarnations of AM tend to reflect the increasing concerns among various sectors of society over the impact of humans on the environment (Sabine *et al.*, 2004). For example, McLain and Lee (1996) note that policy-makers tend to define AM as a tool that permits one to observe and react to the broad impact of policies, whereas natural resource managers are more apt to define it as the development of predictive tools for site-specific management. However, the scientific community tends to define AM as it was first articulated by Holling (1978) and Walters (1986), who describe it as an experimental and iterative approach to the planning and implementation of REM policies (McLean and Lee, 1996). It is this interpretation that will be utilized within this thesis, as it is a definition that is neutral in context, and adaptable for the purposes of this research.

How AM is conceptualized is often a function of the context in which it is to be operationalized. For example, in the context of terrestrial oil and gas development and environmental management, an adaptive approach may be predicated on the concept of ongoing monitoring of species (say, barren-ground caribou) migrations, populations, and distributions, to allow the effects of habitat fragmentation to be observed and acted upon. In other contexts (coral reef management, for example) the AM approach would, of course, be completely different. Despite the range of contextual differences however, Noble (2004) has identified and compiled a listing of core characteristics that normally comprise AM, regardless of the situation in which the approach is being applied (Table 3).

Table 3: Core Characteristics of Adaptive Management

Adaptive Management:
<ol style="list-style-type: none"> 1. Favors Action 2. Accepts and Benefits from Change and Uncertainty 3. Allows Discretion 4. Seeks Resilience 5. Provides Feedback 6. Facilitates Learning and Integration

Adapted from: Noble, 2004

As Table 3 shows, the core characteristics of AM are that it, 1) *favors action*: action in management leads to experience, which is the foundation for the iterative process of AM, 2) *accepts and benefits from change and uncertainty*: in expecting to encounter the unexpected, and in anticipating (although not predicting) changes in the relevant systems, AM allows change and uncertainty to become a learning experience, 3) *allows discretion*: in AM, adapting to the local context is critical to success, and so discretion should be afforded to local decision-makers and

stakeholders on how to best design and implement management strategies, 4) *seeks resilience*: AM does not describe goals as fixed system states or end-points, as it is acknowledged that change and uncertainty make such goals unpredictable and unreliable. Instead, AM seeks to establish managerial resilience in concert with the unpredictable ways in which systems may shift, 5) *provides feedback*: AM is an iterative process which allows for the adjustment of policy and management processes in response to new system information. By incorporating information feedback loops into planning and management processes, decision-makers can expedite the rate at which policy can react to system shifts, and 6) *facilitates learning and integration*: AM acknowledges the complexity inherent in most environmental problems, and likewise, that no single institution or entity is likely to possess the knowledge or ability to tackle these complexities in isolation. Therefore, AM seeks information, views, and approaches from a variety of stakeholders, and brings this diverse information together for a common purpose (Noble, 2004).

The preceding list of criteria creates an understanding of the underlying principles of AM, and provides the foundation upon which an operational adaptive environmental management plan can be built. The details of any such plan, of course, are shaped, enabled, and constrained by an infinite variety of factors (such as geographical characteristics, cultural attributes, institutional and managerial structures, government and governance, financial considerations), resulting in each AM plan bearing its own unique stamp. However, despite the fact that each

individual plan will be distinct, they are generally united by the core criteria described in Table 3.

Although the concepts outlined in this section constitute the groundwork for an AM strategy, they do not in themselves describe the ways in which the ideas associated with AM can be made to function within an operational AM framework. The following section will describe the ways in which the theoretical foundations of the AM approach can be operationalized within managerial frameworks.

2.3.2 Operationalizing AM

When transferring the core criteria of AM into an operational framework, it is important to recognize that there are multiple variations of resource-related management issues, and therefore there is no one-size-fits-all approach. In short, different situations call for different measures, and site-specific managerial strategies are required for individual REM problems (Allan and Curtis, 2005). On this topic, Armitage (2003) states that AM is essentially a political approach, and that it is necessary to remain cognizant of the context in which it is to be applied. Site and situation factors, such as ecology, political arrangements, institutional capacity, fiscal considerations, and stakeholder worldviews all have the potential to act as confounding variables in establishing and maintaining an AM framework (Armitage, 2003).

Despite the individual nature of REM problems, there are common characteristics that work to define the standard AM framework in practice (Sabine *et al.*, 2004). In general, the AM framework advances by championing an experimental approach, allowing policy-makers to learn from their past mistakes and to utilize and incorporate the lessons learned into future managerial adaptations (Thrower and Martinez, 2000). Fundamentally, management decisions are viewed as experiments which test the design and implementation of REM policies (McLain and Lee, 1996; Moir and Block, 2001). If these experiments prove to be ineffective in meeting their goals, they are modified and repeated using the resulting information (Moir and Block, 2001). Using this iterative approach to establish management protocols, AM begins to address the complications inherent in linking specific management decisions with environmental and resource responses, in assessing and addressing time-lags between management actions and measurable ecosystem responses, and in distinguishing the results of management decisions from the confounding reactions of resources to natural environmental variability (Wieringa and Morton, 1996). AM helps management decisions to be based upon the best available information at the time, but also permits the revisiting and alteration of the management action as new information is received (Wieringa and Morton, 1996). The iterative nature of AM, with its repeated oscillations between management action, scientific assessment, and revised management action, helps policy-makers and managers to identify and correct inefficient management more expeditiously than the traditional normative approach (Theberge *et al.*, 2006).

The constant and iterative use of information places the acquisition of knowledge, and the continuous testing, learning, and development of understanding, in a position of utmost importance when designing AM frameworks for complex and changing ecosystems (Carpenter and Gunderson, 2001). Olsson *et al.* (2004) argue that the acquisition of such knowledge ought to be an ongoing, dynamic process, facilitated by social networks and institutional frameworks, to be effective. They state that reliable knowledge and understanding of ecosystems and their dynamics is, perhaps, impossible to develop at the level of the human individual. Rather, an understanding of ecosystem processes and respective management efforts is enabled by a social-ecological co-evolution, involving the accumulation of ecosystem knowledge within a collective social memory (Olsson *et al.*, 2004). Although it could be argued that nearly all information has the capacity to impart some degree of utility in a management situation, AM does not rely on the indiscriminate hoarding of data and knowledge. Rather, it relies upon the, "...accumulation of credible evidences to support a decision that demands action" (Thom, 2000: 366). This brings forth the central role of monitoring as a standard component of AM in practice.

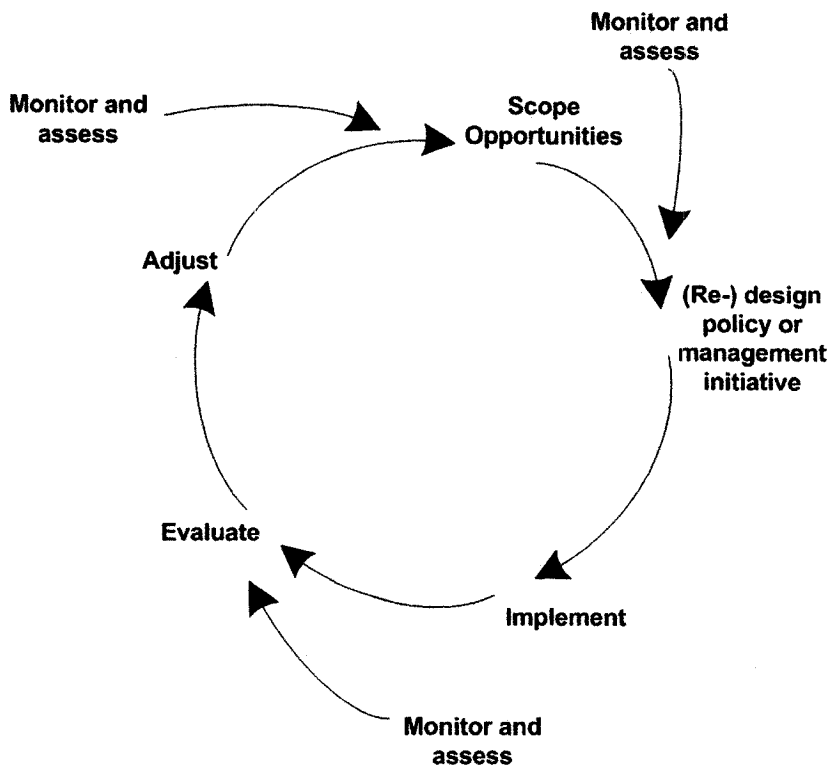
It is important to note that monitoring in AM is not to be confused with the activities of implementation monitoring, such as checking institutional compliance with certain regulations, or observing that a certain management action has been executed; rather, monitoring in AM is in reference to the active and ongoing observation of an established set of criteria relative to the specific goals identified within the planning phases of the project (Sabine *et al.*, 2004). Essentially, AM is

predicated on the continuous and cyclical flow of information between humans and ecosystems (Moir and Block, 2001). The monitoring of ecosystem dynamics and processes is paramount in establishing a human ability to respond to ecosystem changes, and to shape institutions and policies in a way that would allow desirable ecosystem states to be sustained (Berkes and Folke, 1998).

Of course, even within the defined boundaries of a specific environmental arena, all things cannot realistically be monitored. Therefore, the careful selection of what is to be monitored is a critical task. Essentially, indicators and data should allow decision-makers to clearly track their progress toward the goals of the project, and to test project hypotheses along the way (Odum, 1985). In addition, the selection process should also consider how quickly any given indicator will respond to management action (Haney and Power, 1996). Ideally, ecosystem monitoring and management responses should be fast enough to react to undesirable changes, prior to their becoming irreversible (Haney and Power, 1996). Conversely, it is also important that monitoring and research be conducted on an ongoing basis, to provide researchers and decision-makers with long-term baseline data. Long-term data are critical to identifying and evaluating ecological system status over time, key ecosystem interactions, degrees of equilibrium or disturbance, ecosystem processes, and the effectiveness of management decisions over time (Wieringa and Morton, 1996).

The defining management practices within AM can be conceptualized in a sequence of well-defined stages, with the whole process being repeated over time. Several process-based diagrams have been published within REM literature to describe the stages and sequencing of the generic AM framework (see Sabine *et al.*, 2004; Moir and Block, 2001; Armitage, 2003; Bearlin *et al.*, 2002; Noble, 2004). Figure 2 (from Noble, 2004) provides a standard illustration of the common elements of AM, and of its cyclical structure, which is one of the elements which makes it distinct from other forms of resource management. In Figure 2, AM is displayed as a process consisting of identifying or scoping management opportunities, management design and implementation, and evaluation and adjustment, punctuated with ongoing monitoring and assessment (Noble, 2004). The commitments associated with each of these stages are described as follows:

Scope Opportunities -- This is the initial task in operationalizing an AM framework. At this stage, it is important that the opportunities and objectives of the management plan be clearly stated (Rogers *et al.*, 2000). The process of identifying and defining management objectives is fundamental to ensuring that all those involved are knowingly participating under a common agenda. Rogers *et al.* (2000) note that the nonfulfillment of this step has been attributed as the cause for multiple management failures in REM. That this is the initial step in the AM conceptual framework highlights the need for thoughtful planning and design to precipitate an adaptive management approach.

Figure 2: AM Conceptual Framework

From: Noble, 2004

Management Design and Implementation -- It is at this stage that the managerial directions, guidelines, and policies are (re-)designed. By investing the inputs required to develop an adaptive design *prior* to implementation, designers can ensure the creation of a plan that anticipates change, rather than one that simply reacts to it. Experiments can now be constructed to test hypothesis relating to management strategies (Sabine *et al.*, 2004). Indicators must be identified and monitoring programs implemented in order to supply the data needed for current and future iterations. Alternative management options can also be developed to address managerial goals (Noble, 2004).

Evaluate and Adjust -- The outcomes from the experiments of the previous stages are used to evaluate the effectiveness of the management plan in relation to the management goals, and adjustments are made to policy and protocols to improve management direction (Sabine *et al.*, 2004). During these stages, the participants actively apply that which has been learned from the experiment in the management process, and in doing so contribute to the overall accumulation of knowledge within the collective social memory (Olsson *et al.*, 2004).

Monitor and Assess -- This is a continuous process, which is meant to document and track the responses of key system indicators to management actions over prescribed timeframes (Noble, 2004). The ongoing process of learning from management experience and adapting to new knowledge is predicated on the data and information that is collected during monitoring, and the resulting assessments of managerial direction (Thrower and Martinez, 2000).

Having described the general framework that is employed in the operationalizing of AM, the next section will investigate the ways in which this framework has been applied to resource management situations. A small selection of AM applications will briefly be described to illustrate the breadth of applicability of this managerial framework within REM, and to explore some of the difficulties associated with instituting it. Following this, AM in the context of oil and gas resources will be explored.

2.3.3 AM in REM and Oil and Gas

The AM framework has been applied to a myriad of resource management situations, and has been studied both for its attributes and its shortcomings. The diversity of management situations to which this framework has been applied is wide, and includes broad-scale management issues such as watersheds, public lands and land-use conflicts, fisheries, forests, coastal zones, and species conservation (see Habron, 2003; Moir and Block, 2001; Skogan, 2003; Smith *et al.*, 1998; Haney and Power 1996; Thom, 2000; Theberge *et al.*, 2006), and localized issues, such as the management of hydropower dams, radioactive waste, and community-based environmental valuations (see Wieringa and Morton, 1996; Thrower and Martinez, 2000; Norton and Steinemann, 2001).

Although the range of the potential applications spans many management situations, AM is often studied in the context of resource protection initiatives (see Theberge *et al.*, 2006; Burger *et al.*, 2004; Smith *et al.*, 1998; Marttunen and Vehanen, 2004). In particular, the literature shows that it has been applied quite frequently in the arena of ocean and fisheries management. For example, Smith *et al.* (1998) examine the utility of the AM approach to the management of dwindling salmon populations within the Pacific Northwest region of the United States. They note that there is considerable interest being voiced by stakeholders for AM to play a central role in helping to balance and regulate the multiple stressors and demands that are being placed upon salmon; however, they report that progress in implementing AM has been severely limited by the levels of disagreement between these

stakeholders over the identification of the problems (Smith *et al.*, 1998). Resource managers, resource users, scientists, and the public seem unable to reach a consensus on the root causes of the salmon decline, with actors arguing between habitat loss, overharvesting, predation, water pollution, and ocean drift nets (Smith *et al.*, 1998). This lack of a common understanding seems to have stalled the momentum for the adaptive approach, and Smith *et al.* (1998) conclude that for AM to succeed, a better understanding of each other's perspectives must be established. This finding seems to highlight and emphasize the critical nature of identifying and defining management objectives as a primary step in operationalizing AM, as specified in the operational framework (see Figure 2).

In another example, Marttunen and Vehanen (2004) examined the potential for AM within fisheries management in the context of a freshwater lake (Lake Oulujarvi) in Finland. Lake Oulujarvi, the fifth largest lake in Finland, supports several distinct professional, recreational, and subsistence fisheries, and is extremely important to the local economy (Marttunen and Vehanen, 2004). Their study demonstrated that currently, the decision-making process among the lake fisheries is extremely disjointed, with multiple authorities and organizations making independent and sometimes contradictory decisions. The researchers argue that the application of AM would help to unify decision-makers towards common goals (such as long-term sustainability enabled by careful monitoring). However, despite the current managerial chaos, Marttunen and Vehanen (2004) report that strong discontent with the current arrangement does not exist among the various fisheries, and that fisheries

stakeholders did not desire a change in managerial strategies. The reason for this, they note, is in part due to the fact that at the time of the study fish catches were abundant and stocks were not showing signs of decline (Marttunen and Vehanen, 2004). If their reasoning is correct, this would seem to indicate that the desire needed to incite a change of management strategies may be more forthcoming among stakeholders in times of resource scarcity or collapse, than in times of prosperity or abundance. This may be because a shift in managerial styles could be perceived as a potential disruption to a prosperous system, regardless of the systems inefficiencies.

Another sector in which AM surfaces frequently in the literature is forest management. For example, McLain and Lee (1996) describe the attempt by the New Brunswick Department of Natural Resources to apply AM to the management of a spruce budworm outbreak that was threatening vast regions of timber (valuable to the province's pulp industry) in the early 1970s. In this instance, models of the ecosystem were constructed, and multiple outbreak and management scenarios were formulated to aid in deciding the proper course of action (McLain and Lee, 1996). However, implementing the chosen course of action was vastly more complex than the modelers had predicted. The modeling team had assumed that decision-making was the sole jurisdiction of the Canadian government, when in fact, there were multiple other stakeholders and special interest groups that were influencing the decision-making process (May, 1978). As a result, the system that was implemented could not function in the way that the model had predicted and was essentially deemed to be a failed attempt (May, 1978). This management failure illustrates the

importance of integrating environmental and institutional realities into the AM preparatory processes. If AM is to be successfully applied, it would seem that it is critical that the complexities of the decision-making forum not be overlooked as environmental goals are being set.

As these examples demonstrate, AM has been applied across a wide range of resource problems, and although it has not always met with success, it would seem that there are valuable lessons to be drawn from each attempt. Despite the wide range of applications of this managerial concept, direct applications of AM to oil and gas development are extremely scarce within the literature. There is, however, a particular example of AM in the oil and gas sector which should be discussed.

In 1996, Shell Prospecting and Development Peru (SPDP) began a natural gas exploration project in Amazonian Peru, near the Camisea River (Dallmeier *et al.*, 2002). Their plans included the construction of four initial well-sites (to be followed by others), flow lines to connect the well-sites, a gas processing plant, and two pipelines to transport gas to the coastal facilities (Solari *et al.*, 2002). However, the region in which the development was to proceed is situated between a national park, a UNESCO biosphere reserve and a wildlife reserve zone, and is the homeland of an indigenous people and extremely rich in tropical biodiversity (Dallmeier *et al.*, 2002). The development announcement was followed by a host of domestic and international concerns for the region's social and environmental resources, and in response, SPDP decided to adopt a long-term adaptive approach to the project (May *et al.*, 2002). To

facilitate this, SPDP approached the Smithsonian Institute's Monitoring and Assessment of Biodiversity Program (SI/MAB) to develop a framework that would integrate science, biodiversity conservation, and the development of natural gas resources. In response, SI/MAB decided upon an AM framework for the project (Dallmeier *et al.*, 2002).

Under the guidance of SI/MAB, project planning proceeded with strict adherence to the theory and guiding principles of the generic AM framework (Dallmeier *et al.*, 2002). Prior to implementation, planning and monitoring criteria and objectives were established, with regard for all stages in the gas field development. Stakeholders were identified (which included local, national, and international scientists, government agencies, community representatives, national and international NGOs, indigenous groups, state and national universities, and various social and environmental advocacy groups), and biological inventories and assessments were collected and compiled for baseline data-sets (Boddicker *et al.*, 2002).

Once the project managers had consulted and agreed upon the project objectives, monitoring criteria and protocols, and various management scenarios, they went to work implementing the management framework (Dallmeier *et al.*, 2002). At this point, assessment and monitoring protocols began to be utilized for adaptive decision-making. The management team evaluated whether the results from their biodiversity assessments and monitoring programs were well integrated within the

goals and objectives of the overall program, and whether their methods were actually providing accurate, timely, and reliable data (Boddicker *et al.*, 2002). In addition, the social goals of the project were addressed through a process of continuing community and stakeholder consultation (May *et al.*, 2002). For example, local communities had expressed concern about the levels of noise from helicopters and riverboats. In response, boat and helicopter flight paths were altered to avoid populated regions (Dallmeier *et al.*, 2002).

Upon reviewing the AM publications, it seems apparent that accounts of failings in AM tend to outnumber the successes, and that instances of AM in oil and gas management are extremely rare when compared to other resources. Despite this, the SPDP natural gas project is a very successful AM implementation offered within the literature. The root of this dichotomy may be the level of institutional commitment afforded to the project by the main development proponent, SPDP. Strong institutional commitment, and a desire on the part of the developer(s) to invest in AM at all stages of the development process seems to be key in ensuring the success of the management framework. This, of course, stands the test of reason, as a willing participant will likely bring attributes, such as interest, ambition, and enthusiasm, which may not accompany the unwilling participant. Also, it could be argued that the success of implementing AM in the SPDP project may be partially attributable to the fact that this was a new development, without a pre-existing management framework already in operation. In scenarios where the AM framework is being retrofit over an existing management framework there exists an additional

layer of administrative complexity to overcome. However, in this case, the AM framework was the only management framework that project participants were expected to become familiar with, so there was no need for the re-learning of practices and protocols. This is an encouraging lesson to bear in mind as AM frameworks are considered for other new oil and gas developments, such as those which are slated to occur in the Yukon.

As this review has shown, there are common components and approaches that define AM and make it distinct from other management frameworks, but the forms that it takes in practice are as diverse as the resource management contexts to which it can be applied. Likewise, its relative success or failure is dependent upon a plethora of circumstances relating to the site and situation of the resource(s) in question. However, through thoughtful pre-planning and careful design of adaptive approaches to management, it is possible to design management plans that anticipate change, discern a need for iteration through the monitoring of feedback, and adjust. There is no guaranteed prescription for success, but by examining past efforts we become better informed of the circumstances which make implementation as free of conflict as possible. The following section of this paper will review the mechanisms and protocols that exist for dealing with REM when conflict and dispute cannot be avoided.

2.4 Conflict Resolution

It has been stated that REM is more accurately described as the management of human interactions with the environment and resources, as opposed to simply the management of the environment and resources (Mitchell, 2002). If this is true, then conflict is inherent in REM and should be expected; because within almost any society there are groups and individuals with divergent values, interests, expectations, and priorities (Mitchell, 2002).

In the management of natural resources, it is often the case that the issues that arise touch on the interests of several different stakeholders and/or societal groups. Within REM, managers are often required to make decisions that involve choosing a single action from a group of competing alternatives (Shields *et al.*, 1999). Often, these decisions have the potential to incite controversy, particularly when those involved or affected stakeholders hold distinct and differing values, interests, and agendas, and are differentially affected by the chosen course of action (Shields *et al.*, 1999). Hooper *et al.* (1999) note that the problems which are related to resource scarcity or environmental degradation are often best characterized as intractable, in that the range of human sentiment they generate make them exceptionally hard to deal with. Generally, these sorts of problems are connected to the interests of several distinct groups, and if the values and priorities of these groups are in conflict with one another, then the problem becomes significantly more difficult to solve. Hooper *et al.* (1999) also note that in such cases it is possible for managers and decision-makers to

spend a disproportionate amount of time addressing conflict relative to what they spend dealing with the actual management of the resource or the environment.

To complicate matters, Hillier (2003) argues that environmental decision-making has essentially become a medium of public debate and politicized conflict. At the time of writing, this environmental politicization is exemplified in Canada, where following an exceptionally warm winter and a host of extreme weather phenomena, environmental and climate related issues have rapidly been elevated from an obscure topic to a centerpiece of political discourse in the House of Commons, and perhaps a future federal election issue. However, as environmental issues become politicized, desired courses of management action and outcomes tend to become increasingly polarized, which heightens the likelihood of conflict and dispute as decisions are made (Hillier, 2003).

The following sections provide an overview of the nature of resource and environmental conflicts, and examine the literature for established mechanisms of dealing with conflict and dispute within REM.

2.4.1 Characteristics of Resource Conflicts

As Tillitt (1999) notes, conflict can arise when separate people or groups perceive that their values and needs are incompatible, regardless of whether or not any actions specific to those values and needs have been taken. Therefore, while a dispute is typically specific to a particular situation, conflict can exist without such a

specific focus. Two groups can be fundamentally conflicted over belief or values, even prior to dispute-causing action (Tillitt, 1999). This characteristic of conflict, in that it can be fundamentally rooted deeper than a specific problem or issue, is exemplified in many aspects of Canadian society. For example, Canada has a multi-party federal democracy where we elect a governing party, as well as an opposition. In regard to decision-making, the opposition is not mandated to oppose all actions proposed by the government, however, as a collective whole, the opposition party (and all distinct parties) differentiate themselves from one another on the basis of differing beliefs and values, which is the underlying cause of partisan conflict on many specific issues. These sorts of disagreements, that run deeper than immediate issues, are also often inherent in conflicts between environmental advocacy groups and government and/or industry. Environmental advocacy organizations may scrutinize the environmental management decisions made by government and industry because of their divergent values and priorities, which can result in disagreements over specific management actions. In fact, within their mission statement, Greenpeace Canada states that they work to protect the environment, in part, by challenging government and industry (Greenpeace Canada, 2007).

These examples show that inherent conflict can act as a barrier to progress in governance issues, but at the same time can serve an important function, by stimulating measured debate in resource and environmental decision-making. Therefore, it is important that fundamental differences in belief not simply be discounted as complications to conflict resolution, but rather, that they be regarded as

meaningful components within a dispute, and incorporated into conflict resolution strategies (Bruckmeier, 2005). It is important to remember that within a dispute, facts (which should play a key role in deciding an issue) are often intertwined with divergent values and beliefs. Moreover, the distinction of what constitutes a fact may also be layered with beliefs and values (Bruckmeier, 2005). This multidimensional characteristic of conflict, which incorporates the empirical world of facts, procedures, and rules, and the normative world of values, beliefs, and interests, makes the analysis and resolution of resource conflicts contentious (Bruckmeier, 2005).

2.4.2 Approaches to Environmental Conflict Resolution

Essentially, environmental conflict is a subset of a broader category of public conflict, which includes issues such as governance, religion, healthcare, and economic development (Dukes, 2004). O'Leary and Bingham (2003) comment that these disputes can occur upstream over policy (meaning over laws and regulations about how a particular issue or group of issues will be addressed), or downstream about place (referring to an occurrence or a projected occurrence in a particular circumstance). And although each environmental dispute, whether upstream or downstream, is unique and deserving of individual consideration, many are handled similarly to other public disputes in what may be referred to as traditional proceedings and forums, which include political approaches, administrative approaches (agency rules and regulations), and adjudication (Dukes, 2004).

Political approaches enable an elected decision-maker to consider the facts of a particular issue and to issue a decision. In theory, this approach incorporates public preferences into decision-making, as elected officials are accountable to their constituents, and to some degree guided by the will of the people (Mitchell, 2002). Administrative approaches occur at the bureaucratic level, and empower members of environmental management organizations to resolve conflicts in ways that they deem suitable (Mitchell, 2002). Finally, judicial approaches involve litigation and the court system, and are typically used when those involved will not meet voluntarily to address the situation (Mitchell, 2002).

Court-based approaches to conflict resolution are often criticized in the literature for a number of reasons. For instance, environmental disputes tend to move slowly through the courts, during which time the problem(s) may continue and possibly worsen (Bingham, 1986). Judicial approaches also tend to be adversarial, expensive, and produce distinct winners and losers (Hooper *et al.*, 1999). However, despite these criticisms, court-based approaches to environmental conflict resolution are not without their merits; there are several reasons why environmental issues are often brought to judicial forums. First, litigation can offer empowerment to its participants (Bacow and Wheeler, 1984). Within the judicial forum, small groups, or even individuals, can engage corporations or governments. In addition, litigation can also force action; that is, when one side brings a suit and makes allegations, the other side is obligated to respond (Bacow and Wheeler, 1984). Second, the filing of a lawsuit can sometimes offer leverage to the plaintiff (say, an environmental

advocacy group). For example, a company that is subject to an environmental lawsuit may offer to address the environmental concerns if the opponents agree to withdraw their suit (Blackburn and Bruce, 1995). Third, lawsuits can be a means of informing the general public of an issue, and be a vehicle for galvanizing public opinion (Bingham, 1986). By bringing an environmental issue to court, environmental advocates create exposure that may help develop public support, and drive pressure for stricter legislative standards for the future (Bingham, 1986).

In addition to political, administrative, and judicial methods of resolving disputes, there are also alternative forums. In situations where the conflicted parties are willing and able to voluntarily meet with one another to explore their dispute, there is opportunity to explore alternative dispute resolution (ADR) techniques (Hooper *et al.*, 1999). ADR techniques are intended to allow disputing parties to avoid political, administrative, or legal proceedings by facilitating processes of consensus decision-making (Maguire and Boiney, 1994). These techniques are predicated on the concept of voluntary communication among the participants, and their virtue lies in their potential to produce decisions that are more acceptable to all affected parties, and that are consequently less contentious to implement than those imposed by the courts (Bacow and Wheeler, 1984). Hooper *et al.* (1999) note three techniques associated with ADR: negotiation, mediation, and arbitration. These techniques are described as follows.

In negotiation, the parties that are directly involved in the dispute voluntarily agree to meet, to discuss the issues(s) at hand (Mitchell, 2002). The goal for meeting is to try to jointly reach consensus on resolving the dispute. Notably, negotiation does not involve any outside parties. Only those that are directly involved in the dispute attend the negotiations and contribute towards a resolution (Mitchell, 2002). The mediation technique is similar to negotiation, in that the disputing parties also meet to discuss problems, with the goal of reaching a mutual consensus. However, this technique also incorporates a mediator into the discussion, to act as a neutral third-party (Mitchell, 2002). The role of the mediator is to help facilitate and maintain the momentum of the meetings. Depending on individual circumstances, a mediator's role may be diverse; mediators may be called upon to placate discontentment or hostilities that may be impeding the progress towards a resolution, to act as neutral fact-finders, or to facilitate communications between disputing parties (Mitchell, 2002). The mediator, however, is not empowered to develop or impose any actions or agreements on the disputing parties. In mediation, the decisions made with respect to the disagreement are still the responsibility of the disputing parties. Arbitration is similar to mediation in that it also involves the participation of a third-party in the dispute resolution process. However, unlike the mediator, an arbitrator is empowered to make decisions towards the resolution of the problem (Mitchell, 2002). The decisions made by the arbitrator may or may not be considered binding, which is a distinction that the disputing parties would have mutually agreed to prior to the arbitration process. If it is to be a process of binding arbitration, then the participants agree to abide by the arbitrator's decision. In most

cases of binding arbitration, the disputing parties are all directly involved in the selection of the arbitrator, which helps to minimize the potential for bias in the decision-making process (Mitchell, 2002).

Certainly, there are multiple alternatives to the traditional practices of political, administrative, and judicial dispute resolution, and each has its own procedural distinctions. However, Dukes (2004) argues that although the distinctions made between different styles of alternative dispute resolution are helpful, we must nevertheless appreciate that these processes are not truly alternatives, but rather, they are options that exist as part of a complex and interdependent system of dispute resolution, which also includes legal commitments, and legislative and administrative processes. Rarely is the process of dispute resolution truly compartmentalized within a single dispute resolution technique. Rather, environmental disputes may migrate through multiple resolution forums as circumstances change with the stakeholders and the situation (Dukes, 2004). Buckle and Thomas-Buckle (1986: 54) echo this sentiment when they state, "...the relationships among mediation, direct negotiation among [participants], legislative politics, regulatory process, media-based efforts at persuasion, litigation, and many other events influencing the outcome of the conflict are typically complex, constantly variable and mutually interactive..."

Essentially, a commonly respected and failure-proof method of conflict resolution, which is also acceptable to our democratic society, is unlikely to exist (Shields *et al.*, 1999). However, as this review has shown, there are a myriad of

forums and techniques which stakeholders can enter and engage in environmental dispute resolution, each with its own relative advantages and disadvantages. With these options, it is sometimes possible for participants to select the ways in which they arrive at decisions, making the process less contentious and making it more likely that stakeholders will accept outcomes and avoid further conflict (Shields *et al.*, 1999).

Thus far, this review has explored the literature to describe the theoretical discourses that are pertinent to this research topic (Integrated Management and Adaptive Management), and to describe a concept of practical importance to the problem being addressed in this project (Conflict Resolution). The final section of this review will focus upon the literature which describes the analytical technique that this thesis will utilize to examine the information that has been gathered; this technique is known as institutional analysis.

2.5 Institutional Analysis

It has been argued within the literature that unsuitable institutional arrangements are a dominant factor in limitations to resource and environmental planning and management (Ingram *et al.*, 1984). The full degree of truth within this statement is difficult to quantify, however, it is safe to say that institutional arrangements play a critical role in deciding the strategy, efficiency, and expediency of REM efforts.

Considering the influence that institutions have on REM, it is important that it is clearly understood what is being referred to when one speaks of institutions in the context of REM. The Compact Oxford English Dictionary (2007) defines an institution as, “an important organization or public body, such as a university, bank, hospital, or Church”. Bringing this definition into a REM context, Crawford and Ostrom (1995: 582) define an institution as, “...enduring regularities of human action in situations structured by rules, norms, and shared strategies, as well as by the physical world.” The meaning of “institution”, as it is to be understood for the purposes of this thesis, is more adequately defined by the former definition than the latter, as this is an investigation of organizations and public bodies. However, with respect to organizations and public bodies, the emphasis on rules found within the latter definition is of central importance to the thesis topic. Since institutions are typically narrow in their mandate (i.e. focus on governance *or* education *or* environmental advocacy), society requires the establishment of multiple institutions, and various issues tend to bring separate institutions together in many different arrangements. Institutional arrangements indicate the structure and functionality of the relationships between institutions that are communicating with one another (Imperial, 1999).

Although Ingram (1984) states that institutions and their associated interests and agendas can complicate resource and environmental management and problem-solving, it must also be acknowledged that there is a reciprocal aspect to this claim. Just as institutions can create complexity in the management of resources and the

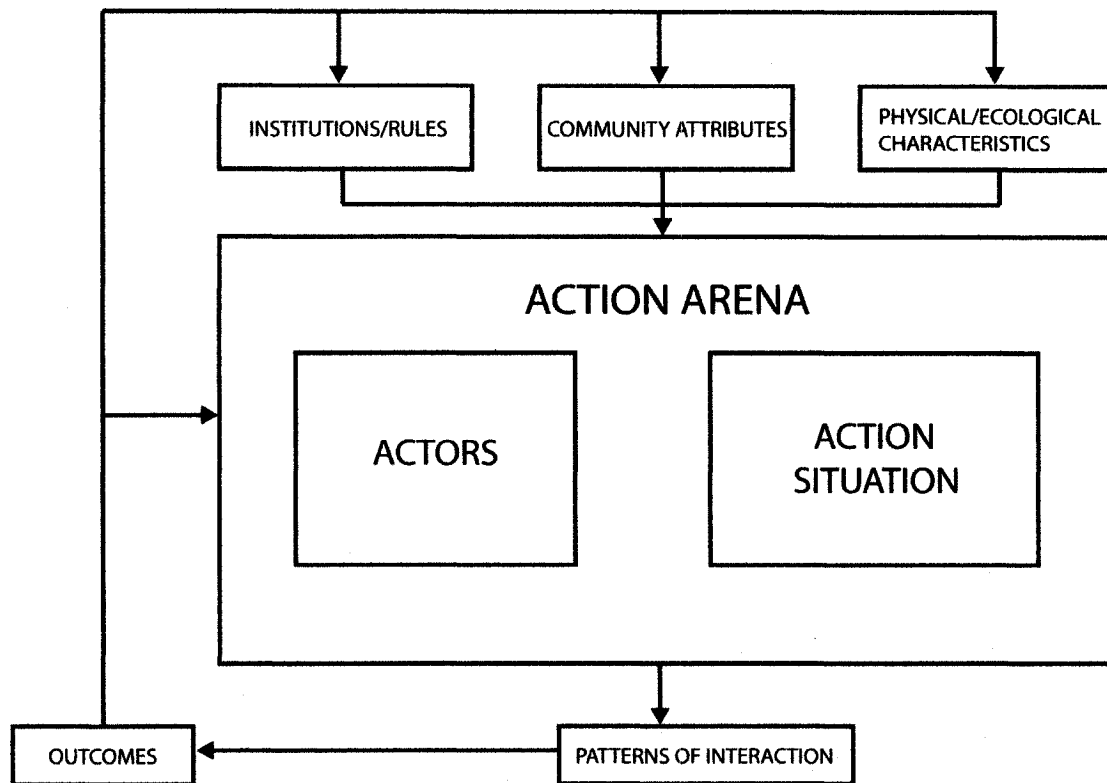
environment, so too does an increasing knowledge of complexity in REM create a corresponding burden on decision-making institutions (Meidinger, 1997). As knowledge of ecosystem dynamics and human/environmental interactions increases, and the interconnectedness of human actions and environmental reaction becomes more apparent, so too does the complexity of corresponding management actions increase for the institutions mandated to addressing these interactions (Meidinger, 1997). Adding to the complexities just described, within most resource or environmental issues of sufficient scale, it is likely that the interests of several institutions will become relevant, each with a unique set of goals, operating procedures, and protocols for interacting with other institutions. As most natural resource management decisions are made within some form of institution, it is vitally important that aspects of institutional structure and interaction that lead to successful outcomes be understood, and that critical flaws within institutional arrangements be identified (Blumenthal and Jannink, 2000). One method of identifying these aspects is through the use of an institutional analysis framework.

2.5.1 The Institutional Analysis and Development Framework

Institutional analysis is a tool used to describe the way in which institutional actors organize their interactions with one another (Blumenthal and Jannink, 2000). In the past, several versions of institutional analysis frameworks have been presented, with considerable variations among their conceptual elements.

For example, Noble *et al.* (1977) outlined the need to assess the consistency, quality, and effectiveness of institutional settings within institutional analysis, as a way of using the analysis to help coordinate multiple resource management and development efforts. They argue that within any successful resource management effort, it is essential to strike a balance between these three elements, and that by considering these elements within the analysis, that balance can more easily be discovered and incorporated into management programs. In another approach, Blumenthal and Jannink (2000) argue within their comparison of collaborative management methods in natural resource management that the institutional analysis ought to consider the institutional conditions that guide collaborative management efforts, which they outline as: 1) the identification of a well-defined group of stakeholders with legitimate stakes in the decision-making process and sufficient autonomy, 2) the balance of power among stakeholders, 3) the financial resources that sustain the institutions, 4) the sanctions that motivate cooperation among stakeholders, and 5) the mechanisms for conflict resolution. In addition to these two interpretations of institutional analysis, there are multiple examples within the literature where the institutional criteria being considered are adjusted to fit the individual situation. However, while it is clear that past efforts at institutional analysis have incorporated considerable variations in methods and criteria selection to achieve their purpose, institutional analyses typically share in the common goal of improving the efficiency and effectiveness of management efforts through the careful evaluation of selected institutional criteria.

In the early 1990s, an institutional analysis framework, known as the institutional analysis and development framework (IAD), was devised by Elinor Ostrom and her colleagues at the Workshop in Political Theory and Policy Analysis at Indiana University (Ostrom, 1990). It established a more common set of criteria for institutional analysis than many of the earlier *ad hoc* approaches (Sproule-Jones, 1993). What differentiates the IAD from other forms of institutional analysis is the focus that it devotes to defining and understanding rules in the context of a problem or issue. Essentially, rules are an attempt to achieve order, structure, and predictability among humans and their various relationships (Ostrom, 1986). As such, rules have the ability to allow, disallow, or require specific actions to be conducted within institutional forums (Crawford and Ostrom, 1995). Imperial (1999) states that rules may be presented formally (such as laws, policies, or regulations) or informally (such as common standards or behavioral norms). Most importantly, rules dictate the ways in which institutions function internally, among other institutions, and in relation to a problem. Therefore, the IAD framework attempts to examine problems from an institutional perspective, and to discover how the enacted rules affect or address these problems (Imperial, 1999). The general elements of the IAD framework are illustrated in Figure 3.

Figure 3: The IAD Framework

Adapted from: Rudd, 2004

Within the IAD framework, the core of the analysis occurs in what is referred to as the action arena (Rudd, 2004). The action arena outlines the focus of the analysis, or the forum of primary interest. This includes the institutional actors or the individuals that are influential or making decisions in REM, and the action situation, which is the geographically explicit region of contextual relevance to the actors and the issue at hand (Ostrom *et al.*, 1994). Often, the action situation is defined as the ecosystem of interest, which can take many forms across multiple scales, such as a watershed, a particular habitat, or a single geographic feature (e.g. a lake). When

conducting an IAD, it is important first to identify the actors and the action situation, to ensure a well-defined action arena for the analysis (Imperial, 1999).

The IAD framework suggests that three distinct groups of variables contribute to influencing the way in which the actors interact with one another inside the action arena. First, the IAD contends that to understand the interactions of the institutional actors, it is important to be familiar with the physical and ecological characteristics of the landscape where the analysis will occur (Ostrom *et al.*, 1994). By developing this familiarity, it is argued that a better understanding of the institutional rules can be obtained, as such rules are often contextually relevant to the physical and biological surroundings of the institution (Ostrom *et al.*, 1994).

Second, the IAD framework suggests that, because institutions do not exist in isolation from the communities in which they are located, interorganizational interactions must be considered in the context of the surrounding communities if they are to be fully understood (Imperial, 1999). When considering the attributes of a community, there are multiple potential variables that the researcher may choose to incorporate. Ostrom *et al.* (1994) note that “cultural” attributes are often applied within this category. This may include factors such as population size, density and distributions, economic situations, traditions, ethnic diversity, and behavioral norms.

Finally, the IAD framework asserts that interactions within the action arena are influenced and governed by the explicit and implicit application of rules (Ostrom

et al., 1994). It is these rules that institutional actors will reference when justifying their internal or external actions within the action arena. Therefore, because of the influence that they exert in the action arena, it is essential that they be thoroughly understood. Additionally, it is important to recognize that the other two groups of variables just discussed within the IAD framework also shape these rules. The physical and ecological conditions of the action arena, and the attributes of the community, are both influential in the formation and revision of institutional rules (Ostrom *et al.*, 1994).

In accordance with these three categories of variables, and with the constraints that they impose on the actors within the action arena, the IAD framework then evaluates aggregate patterns of interaction, and identifies the outcomes that emerge (Rudd, 2004). In turn, these outcomes have a dynamic influence on the three categories of variables, and on the action arena itself (Rudd, 2004). These interactions and outcomes can be evaluated according to multiple relevant criteria, including but not limited to social or economic costs, impacts or outcomes (Rudd, 2004).

The following chapter in this thesis will now shift the discussion from the theoretical and analytical aspects of REM that have been discussed thus far, towards the actual site and situational attributes that constitute the case study region in which this thesis is focused. This will provide the requisite information for the three groups

of variables within the IAD framework (physical/ecological conditions, attributes of community, institutions/rules) prior to conducting the analysis.

3 CASE STUDY DESCRIPTION

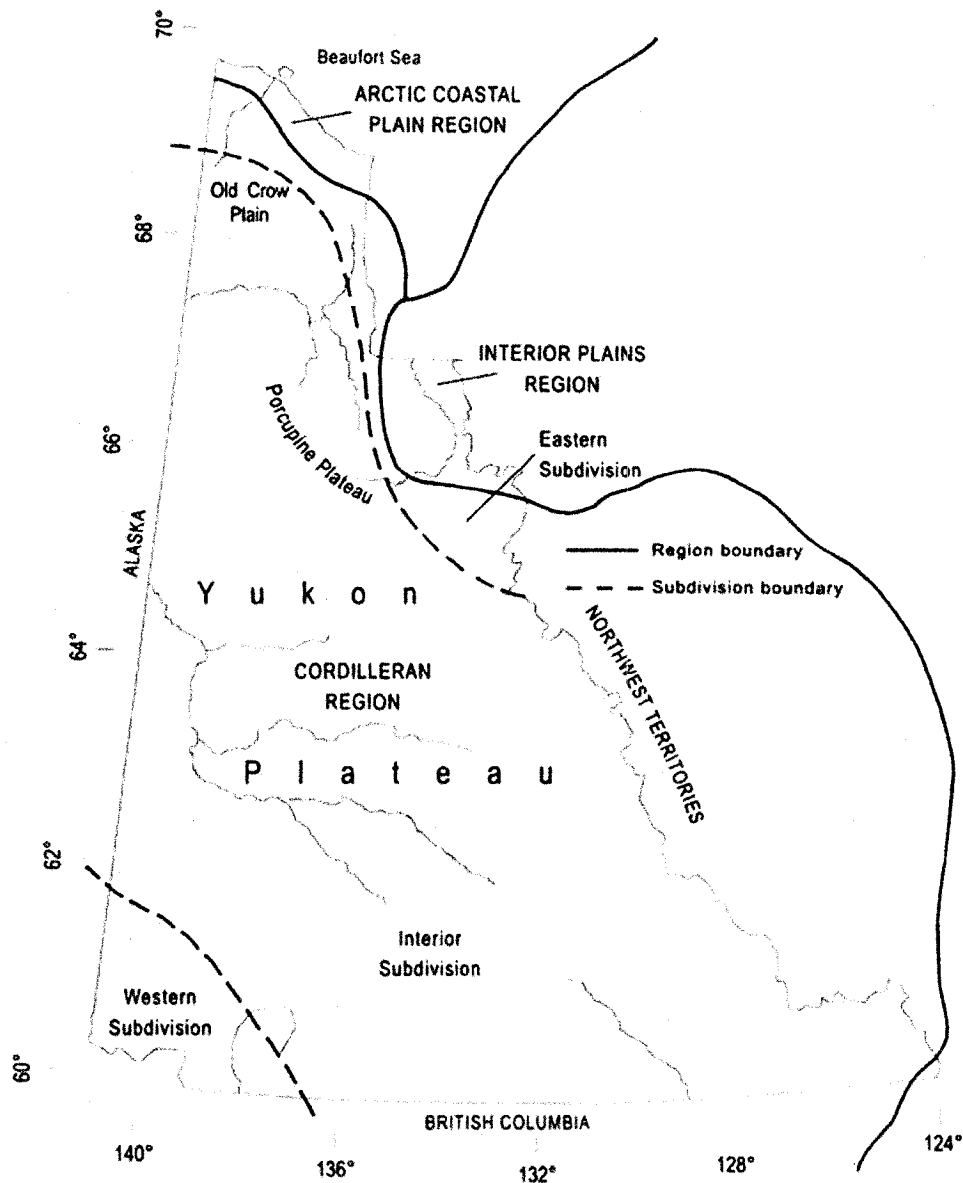
The objective of this chapter is to provide a description of the characteristics of the case study region. In keeping with the criteria of the IAD framework (as described in Chapter 2), this chapter will describe the case study location in relation to three groups of variables: Physical/Ecological Attributes, Community Attributes, and Institutions/Rules. The purpose of this description is to develop an awareness and understanding of the sociobiophysical characteristics of the Yukon Territory, so that this contextual information can be utilized within the analysis to follow.

3.1 Physical and Ecological Attributes

3.1.1 Physiography, Geology, and Topography

Physiographic and geologic descriptions of a region as expansive as the Yukon Territory have the potential to become very long, particularly if local scale characteristics are considered. For the purposes of this document, this description will be confined to a broad regional scale.

There are three major physiographic regions in the Yukon, each with its own distinct geology (Figure 4) (Scudder, 1997).

Figure 4: Major Physiographic Regions of the Yukon

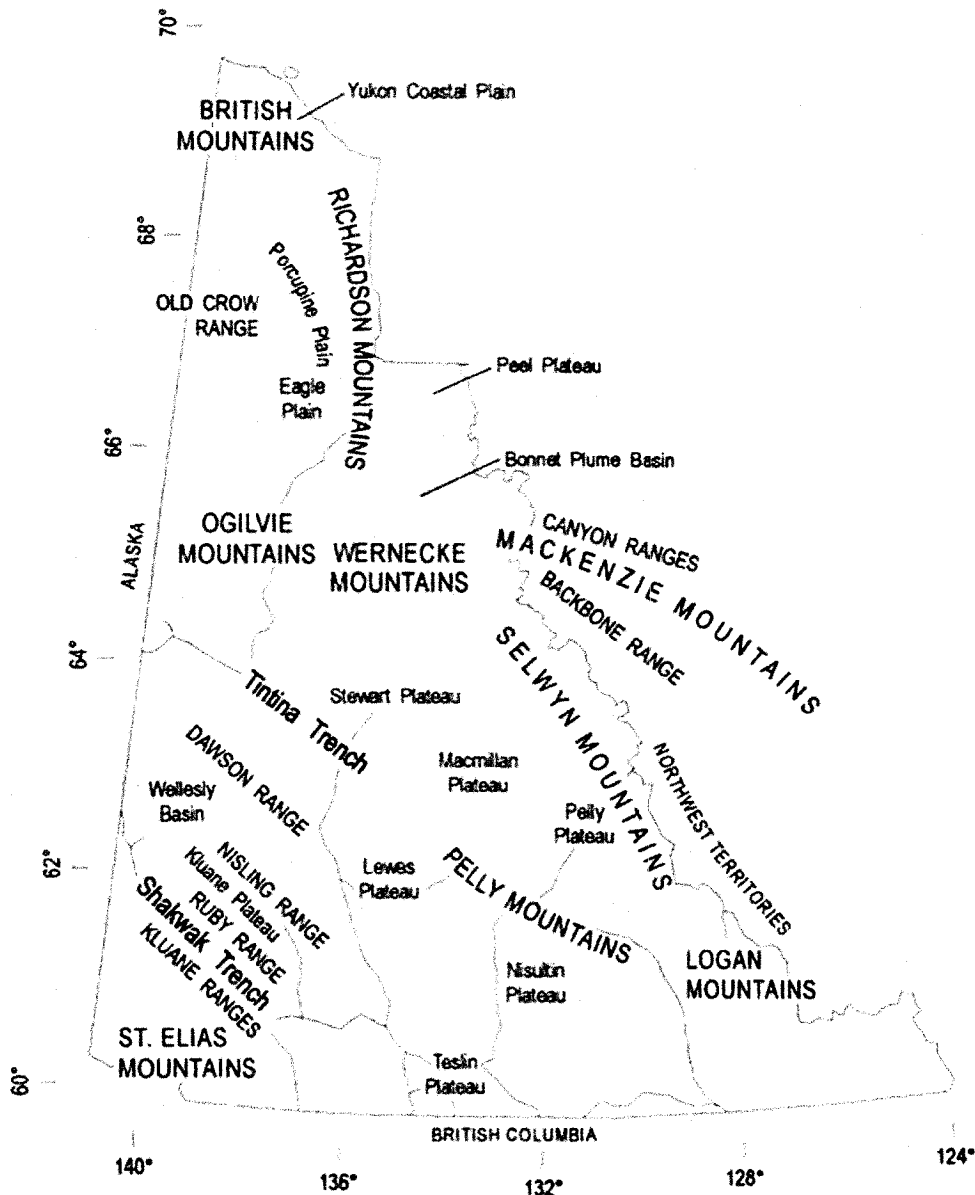
From: Scudder, 1997

The Yukon Arctic Coastal Plain, which is a part of the Arctic Coastal Plain Region, is a narrow slice of terrain which parallels the Beaufort Sea. This region is mostly an erosional surface which cuts into sandstone and shale, with a thin strata of recent sediment as surface coverage (Gabrielse and Yorath, 1992). Generally, this

region is a flat plain, characterized by small lakes and ponds, and incised by rivers and streams (Scudder, 1997).

In the northeastern part of the Yukon lies the Interior Plains Region, which is largely a thick, flat-lying strata of granite. This region is well known for the Peel Plateau, which is a flat surface lying between the northern Mackenzie Mountains, the eastern Richardson Mountains, and the Bonnet Plume Basin, which is a wide, shallow depression between the Peel River and the mountains to the south (Figure 5).

The majority of the Yukon lies within the Cordilleran Physiographic Region, which is a broad mountain belt of sedimentary and volcanic rock (Scudder, 1997). Within this region, there are three physiographic subdivisions: the western, eastern, and interior subdivisions (Figure 4). The western subdivision is composed mainly of volcanic rock, and is home to the Icefield Ranges of the St. Elias Mountains, and the Kluane Ranges (Gabrielse and Yorath, 1992). This region is largely covered in snow and permanent ice, and contains many peaks above 4500 m, including Mount Logan, which is the second highest mountain on the continent (Danby *et al.*, 2003). The eastern subdivision is largely composed of folded strata of sedimentary rock which form various mountain ranges of lesser elevations, characterized by steep sides and sharp crests (Scudder, 1997). The interior subdivision, which is the most expansive subdivision in the territory, is comprised of a mixture of volcanic, metamorphic, and sedimentary rocks (Gabrielse and Yorath, 1992).

Figure 5: Major Topographical Features of the Yukon

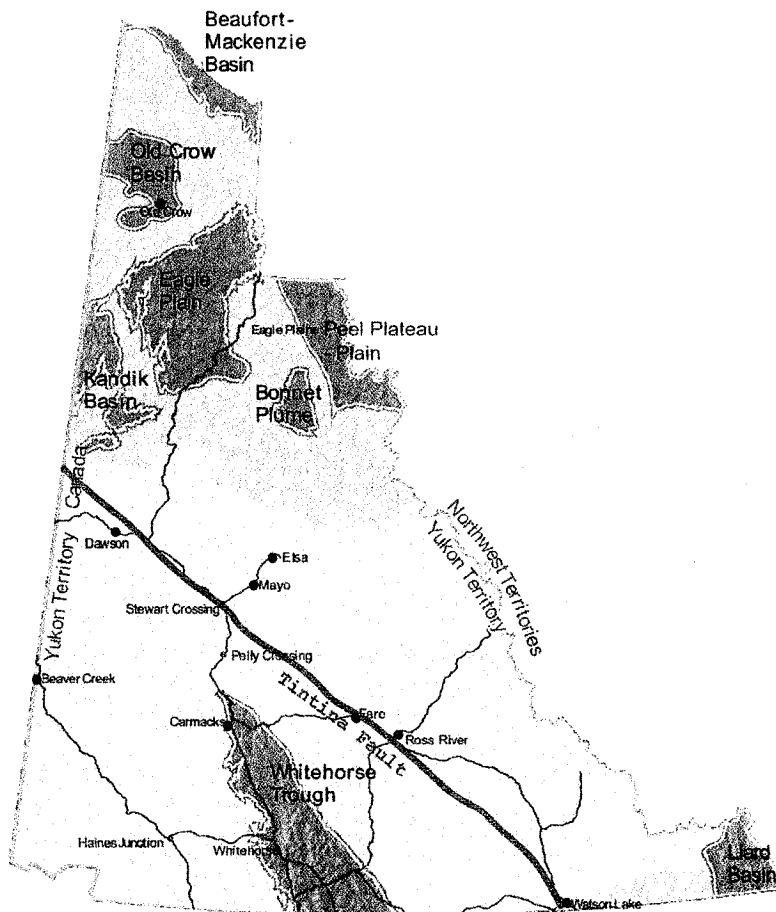
From: Scudder, 1997

This subdivision is made up of a series of mountain ranges (Pelly, Ogilvie, Wernecke, Selwyn, and Logan ranges), and a series of plateaus to the north and south of these ranges, which are collective parts of the Yukon Plateau (Gabrielse and Yorath, 1992). The Tintina Trench (also called the Tintina Fault), which is a fault-

line of laterally shifting bedrock, runs northwest/southeast through the center of the Yukon Plateau. Along its length, this feature has both gently sloping walls and steep cliffs, and varies in width from 4.8 to 22.5 km (Scudder, 1997).

3.1.1.1 Oil and Gas Basins

Figure 6: Yukon Oil and Gas Basins



Adapted From: YTG, 2005a

The Yukon contains eight geologic basins that have been identified as suitable for the formation and preservation of hydrocarbon deposits (YTG, 2005a). Of these

eight, seven basins (Beaufort-Mackenzie Basin, Old Crow Basin, Peel Plateau and Plain, Eagle Plain, Bonnet Plume, Kandik Basin, and Liard Basin) occur within the sedimentary rocks northeast of the Tintina Fault, and one (Whitehorse Trough) is located to the southwest of the Tintina Fault (Figure 6).

Oil and gas resources assessments for these regions of exploration have been completed by the National Energy Board and the Geologic Survey of Canada, with periodic reassessments conducted as new geologic information is collected in the field (YTG, 2005a). As almost all of these regions, with the exception of the Liard Basin, have no current oil or gas producing well-sites, the assessments for hydrocarbon potential are largely conceptual, and carry with them a greater degree of uncertainty in hydrocarbon pool size than assessments conducted on producing oil and gas fields. While acknowledging these uncertainties, EMR describes the potential oil and gas resource deposits, as shown in Table 4.

Table 4: Yukon Oil and Gas Resource Potential

Basin	Mean Gas Potential (Billion Cubic Feet)	Mean Oil Potential (Million Barrels)
Kandik	1397	365
Beaufort-Mackenzie	1473	294
Bonnet Plume	8000	0
Eagle Plain	6054	436
Liard Plain	4429	15
Old Crow	1149	0
Peel Plateau and Plain	2945	0
Whitehorse Trough	7325	94
TOTAL	25 572	1204

Adapted from: YTG, 2007

Comparatively, the Yukon oil estimate (1.2 billion barrels) seems small when compared to the resource potential of the Athabasca oil sands in northern Alberta, which are estimated to contain 1.7 trillion barrels of bitumen, and have the potential to produce 300 billion barrels of oil, using current technologies (Stanton, 2004). However, the Yukon gas potential is comparable to the 16 trillion cubic feet of gas that has been defined as recoverable in the offshore petroleum reserves of Canada's Atlantic region (Kidston and Dingwall, 2002).

3.1.1.2 Permafrost

Permafrost is defined as soil, sediment, or rock that remains at or below 0°C over two or more consecutive winters and an intervening summer (Scudder, 1997). In general, the distribution of permafrost is related to air temperature, local climate, vegetation cover, and terrain (aspect, material type, and drainage condition of surface) (Huscroft *et al.*, 2004). In the Yukon, there exists a zone of continuous permafrost in the far north (from the Beaufort Sea, south to approximately 67°N), where permafrost exists almost everywhere beneath the surface of the land, with the exception of below major rivers and lakes (Huscroft *et al.*, 2004). To the south of this lies a zone of discontinuous permafrost, where the permafrost is extensively distributed beneath the surface, but is not fully continuous. The extent of permafrost within this zone transitions from expansive to sporadic, as one moves from northern to southern regions, respectively (Huscroft *et al.*, 2004).

Permafrost is easily damaged, as it is very sensitive to changes in temperature (Pembina Institute, 2004). Oil and gas development activities, including the overland transport and operation of heavy industrial equipment, can result in heavy surface and sub-surface disturbances to the land. The disturbance, compression, or removal of surface material and vegetation can cause an increase in average soil temperature, which can result in a loss of permafrost (Pembina Institute, 2004). Additionally, there is the potential for heat from industrial activity and infrastructure (such as pipelines) to thermally “pollute” the surface of the territory, resulting in a loss of permafrost (Pembina Institute, 2004).

The thawing of permafrost is an irreversible process, as the melted water generally escapes, and cannot be replaced (Turner *et al.*, 2007). The loss of permafrost has many ecological implications for both the short and long-term, including but not limited to: the loss of trees and boreal forest, the expansion of thaw lakes, the loss of habitat for wildlife, increased slope and soil instability, and the conversion of tundra to grasslands and wetlands (Turner *et al.*, 2007). Therefore, in the context of this study, it is important that permafrost be considered in the development and management of industrial activities.

3.1.2 Climate

The climate of the Yukon is variable, but is typified by long, cold winters and short, warm summers, with the annual mean daily temperature below the freezing point in all points of the territory (Wahl *et al.*, 1987). January and July are typically

the coolest and warmest months respectively, however, the complexity of the topography produces high degrees of local and regional variation. The general atmospheric circulation pattern in the north produces a west to east progression of pressure systems, which also dictates the progression of storm tracks (Wahl *et al.*, 1987).

In the winter, as a result of the prevalent low-pressure system over the northeastern Pacific, there are frequent storms along the Arctic coast. During the same months however, there is a prevalence of high pressure over the central regions of the Yukon, which stabilizes the weather and causes clear skies and cold temperatures (Wahl *et al.*, 1987). In the summer, high-pressure cells at mid-latitudes tend to cause sunny skies and warm temperatures in the southern regions of the Yukon.

In the southwestern regions of the territory, eastward moving clouds drop much of their precipitation while passing from the north Pacific over the St. Elias Mountains, causing the leeward regions of these slopes to experience very arid conditions (Wahl *et al.*, 1987). In the large central regions of the territory the precipitation is variable, and is largely dependent on proximity to surrounding mountain ranges and the characteristics of the mountains themselves (such as aspect and elevation). Overall however, July, August, and September are the months with the highest levels of wet precipitation (Wahl *et al.*, 1987).

3.1.3 Vegetation

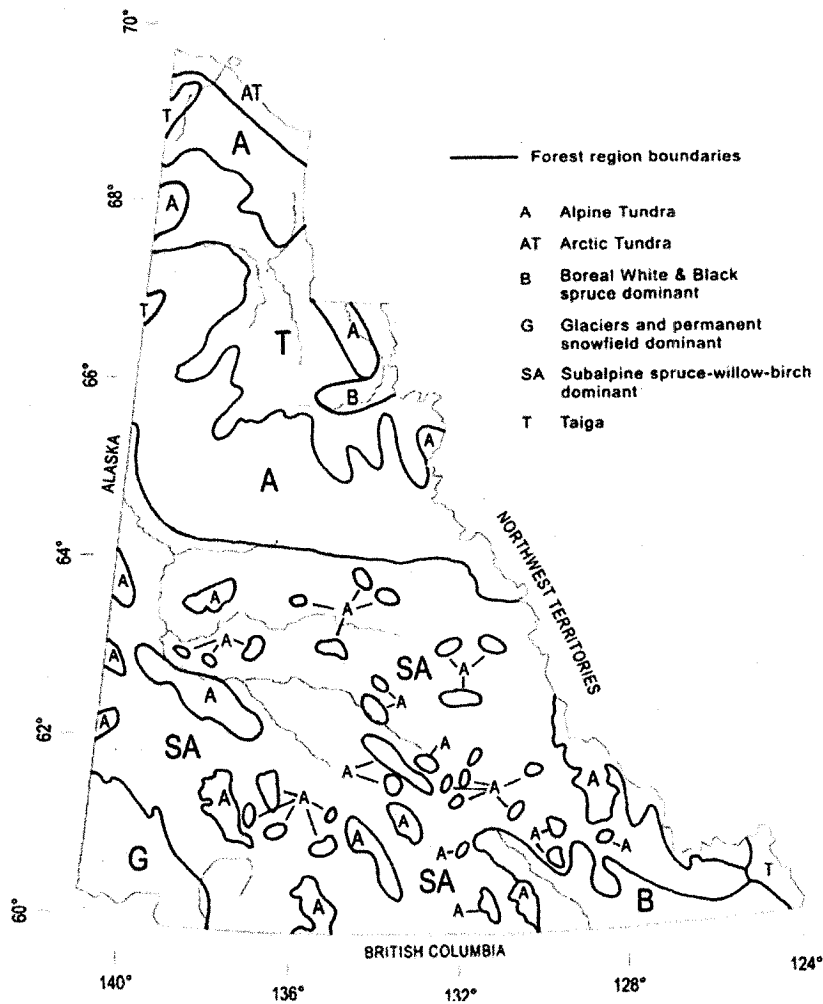
The majority of the Yukon is represented by two terrestrial ecozone designations; the Taiga Cordillera, and the Boreal Cordillera (Canadian Council on Ecological Areas, 2006). Several biophysical aspects differentiate these two ecozones from one another, however the most visible distinction is the prominent tree cover within the Boreal Cordillera, and the relative absence of trees (with the exception of dwarf deciduous species) in the Taiga Cordillera (Dearden and Mitchell, 1998).

On a more regional scale, investigations into the characteristics of vegetation patterns in the Yukon show that vegetation cover is strongly reflective of latitudinal and elevational temperature gradients (Scudder, 1997). These regional patterns are displayed in Figure 7. As Figure 7 shows, the majority of the land in the southern Yukon is defined as a sub-alpine vegetation zone. The sub-alpine zone is characterized by its spruce-willow-birch ecosystem, which occurs between the white and black spruce forest of the boreal, and the stunted vegetation of the tundra zone (Scudder, 1997). In this part of the territory, the sub-alpine zone is punctuated by a mosaic of alpine tundra zones at higher elevations, with limited portions of land falling under the distinction of boreal in the southeastern region of the territory, and permanent icefields and glaciers in the southwest.

In the northern half of the Yukon, the dominant vegetation zones are classified as alpine tundra and taiga, with a small segment of arctic tundra along the coast.

Characteristics and composition of vegetation in the alpine tundra vary with slope, exposure, soil type, moisture, and snow cover; generally however, low-lying vegetation, such as mosses, lichens, shrubs, and dwarf willows are dominant. Taiga regions are dominated by very stunted forest vegetation, consisting mainly of black spruce, larch, and white spruce, with a ground cover of willow, lichens, mosses, shrub species, and cottongrass (Scudder, 1997).

Figure 7: Yukon Vegetation Distribution



From: Scudder, 1997

In northern regions, the damage or removal of vegetation assumes a long-term dimension, as the shorter growing season and low levels of soil nutrients result in much longer regeneration times (Pembina Institute, 2004). This is an important point in relation to this study, where the removal of vegetation cover for prospective industrial developments must be considered in the context of the sensitive northern environment.

3.1.4 Wildlife

The Yukon, being entirely located north of the 60th northern parallel, has a lower diversity of animal (and plant) species than regions closer to the equator, in keeping with the biogeographic principle of latitudinal diversity gradients (MacDonald, 2003). This principle states that generally, for terrestrial organisms, there is an increase in species diversity as one moves from high to low latitudes. In addition, not only does the total number of species increase towards the equator, but the average number of species found per unit of land area also increases (MacDonald, 2003).

In relation to these lower levels of species diversity, species interactions and co-dependencies at high latitudes are more vulnerable to disturbance than species at lower latitudes, in part because there is a lower level of redundancy in species that can fill niches. Generally, if a species is removed from a higher latitude region, there are fewer species that can fill that vacant role than there may be at lower latitudes, putting the entire ecosystem at a greater risk of disturbance (MacDonald, 2003). This

is a characteristic of northern habitats that carries implications for habitat conservation, species protection, and industrial development in the north.

There have been many studies conducted that document specific species present within the north. For example, Danby (2005) compiled a checklist of birds and mammals of the St. Elias mountain parks (a contiguous network of protected areas in northern B.C., the Yukon, and Alaska) and found there to be 39 confirmed mammal species within Kluane National Park (a Canadian national park in the southwest Yukon). Many studies such as these are conducted in respect to biogeographic, as opposed to political, boundaries, so complete and detailed listings of Yukon specific species are less common than regional inventories. And although a detailed accounting of the species that inhabit the Yukon is not immediately relevant to this study, it is useful to know that the flagship species of the territory include the grizzly bear, black bear, caribou, mountain goat, and dall sheep.

Most important in the context of this study and wildlife, is that attention be paid to the risks associated with industrial development and wildlife habitats. In regard to this, it is prudent to become familiar with species-at-risk in the Yukon, particularly where new industrial developments are being considered. Currently, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) lists four terrestrial species of “special concern” in the Yukon (a species that may become threatened or endangered from a combination of biological characteristics and identified threats): the grizzly bear, polar bear, woodland caribou, and wolverine, and

one “threatened” species (a species likely to become endangered if limiting factors are not reversed), the wood bison (COSEWIC, 2007).

3.2 Community Attributes

3.2.1 Governance

The provisional district of Yukon was originally established in 1895, and was created as a judicial district of the Northwest Territories, by a proclamation issued pursuant to the *North-West Territories Act* (YTG, 2004a). Three years later, the *Yukon Territory Act* was given royal assent, establishing the Yukon as a separate territory. At this time, governing responsibility was assigned to a federally appointed Commissioner and four appointed members of the Territorial Council (YTG, 2004a).

Since that time, there has been an incremental progression towards responsible government in the Yukon, with the territory steadily advancing to assume more control over its own affairs from the federal government. In 1909, the Territorial Council (or Legislature) was wholly elected for the first time; however, the head of the executive council remained a federally appointed commissioner for another 70 years (YTG, 2004a). Having an appointed leader was largely viewed as a colonial governance regime by the elected councilors, who began to earnestly push for full responsible government in the 1960s (YTG, 2004a).

In 1966, the Yukon Council passed the Autonomy Motion, which called for a number of changes to the *Yukon Act*, including renaming the Yukon Council as the Yukon Legislative Assembly, and increasing the number of MLA's to 15. In 1969, the Department of Indian Affairs and Northern Development (DIAND) responded to this motion with the creation of an executive committee made up of the commissioner, two assistant commissioners, and one elected councilor (YTG, 2004a). This is credited with establishing the foundation of Cabinet Government in the Yukon, and during the 1970s there was a steady replacement of federally appointed assistant commissioners with elected members of the Legislature. Finally, in 1979, the role of the federally appointed commissioner was amended by DIAND (to a representative position, similar to the provincial Lieutenant Governors), with the leader of the legislature's majority party to become head of the Executive Council, or Cabinet (YTG, 2004a).

At the time of writing, the Yukon is sitting its 32nd Legislative Assembly, and there are currently three parties with seats in the house: the Yukon Party which forms the government with 10 seats, the Liberal Party which forms the opposition with 5 seats, and the New Democratic Party with 3 seats (Yukon Legislative Assembly, 2007).

3.2.1.1 *First Nations*

The development of governance in the Yukon has also been strongly shaped by the 14 first nations that reside in the territory, and the settlement of land claims

(YTG, 2004a). In 1973, the Council for Yukon Indians (CYI), (now the Council of Yukon First Nations), presented a comprehensive claim to the federal government entitled *Together Today for our Children Tomorrow* (CYI, 1973). This was the first comprehensive land claim ever accepted for negotiation by Ottawa, and it began the process of land claims in the territory (YTG, 2004a).

In 1993, Yukon first nations, federal and territorial governments, and the Council for Yukon Indians signed the Umbrella Final Agreement (UFA) (CYFN, 2006). The UFA is divided into 28 topical chapters, within which all pertinent topics are discussed (Canada, 2007). In its entirety, the UFA is the overarching protocol of the Yukon land claims package, and provides the framework and the grounds for negotiation within which all 14 Yukon first nations can conclude their individual First Nation Final Agreements (FNFAs) (CYFN, 2007a). The UFA is not a legal document, but represents the political arrangement between the three consenting parties (CYFN, 2007a).

FNFAs comprise the legal commitments made between each individual first nation, the YTG, and the federal government. They contain all of the topical content and provisions presented within the UFA, in addition to any number of specific provisions that pertain to the individual first nation (CYFN, 2007a). In addition, concomitant with reaching a FNFA, each first nation must also reach a Self-Government Agreement (SGA), which is detailed in Chapter 24 of the UFA (Canada, 2007). SGAs describe the authorities and responsibilities of the first nation

government, and provide the power to construct and institute laws in respect to lands and citizens, to tax, to engage in municipal planning, and to manage or co-manage lands and resources (CYFN, 2007a). As Danby and Slocombe (2002: 260) state, "...the settlement of land claims in the Yukon has formalized the First Nation as a new participant in government, with a legislated right to take part in the management of natural resources."

3.2.1.2 *Devolution*

In the context of the Yukon, devolution refers to the transfer of responsibility for provincial-type programs and services within the Yukon from the federal to the territorial government (Canada, 2001). In 1997, the federal government deemed that sufficient progress had been made towards the settlement of land claims that the devolution of land and resources could be allowed to occur, and in 2001 the Yukon Northern Affairs Program Devolution Transfer Agreement was signed and finalized (YTG, 2004a). With devolution, the administration and control of lands and resources, including oil and gas resources, was given to the YTG, along with the collection of all royalties, rentals, dues, fees, and other charges previously collected by the federal government (Canada, 2001). In addition, the YTG is entitled to the revenues raised from the management of land and resources, with these new revenues resulting in a reduction to the YTG's annual formula financing grant from the federal government (Canada, 2001). In accordance with the transfer agreement, the federal government retains the power to re-assume administration and control of public lands in special circumstances (i.e. for the creation of national parks and protected areas,

national defense, human welfare, or the conclusion and implementation of FNFAs or SGAs) (Canada, 2001). Also, while the Yukon receives administrative rights and control over Crown lands, the underlying title to territorial land and resources remain vested in the Crown (Canada, 2001). Resource devolution was implemented in the Yukon following the replacement of the former *Yukon Act* with the current *Yukon Act*, and the transfer of land and resource control became effective April 1st, 2003 (YTG, 2004a).

3.2.2 Labour Force and Economy

According to the Yukon Bureau of Statistics, the population of the Yukon was 32 335 individuals in December of 2006 (Yukon Bureau of Statistics, 2006a). Within this population, 74.6% are of an age to participate in the labour market (15-64 years of age), with 18% of the population being under 15 years of age, and 7.4% over 64 years of age (Yukon Bureau of Statistics, 2006a). Historically, population and employment patterns in the Yukon have been closely tied with the economic activities occurring within the territory. Much of this has been related to northern development, such as the Klondike Gold Rush and the construction of the Alaska Highway (Danby *et al.*, 2003). Although these resource and infrastructure developments created jobs, increased the population, and generated wealth, the relatively small population of the territory combined with the relatively small selection of employment alternatives (as compared to larger urban centers) means that the loss of industry can have the opposite effect across the Yukon. For example, following the closure of the Faro mine in 1997, the population of the Yukon entered

two years of significant decline (-3.9% and -3.3% respectively), followed by four years of marginal decline (-1.3% to -0.3%) (Yukon Bureau of Statistics, 2006a).

As of March 2007, the Yukon labour force is reported to contain 15 400 individuals, with 14 900 employed, resulting in a 3.2% unemployment rate. This is significantly less than the current average national unemployment rate of 6.1% (Yukon Bureau of Statistics, 2006b). Incidentally, this statistic must be seasonally adjusted to account for the cyclical workforce migration that occurs to accommodate the annual summer tourism and hospitality season (Yukon Bureau of Statistics, 2006b).

In terms of industry divisions and their relative importance for Yukon employment as a whole, the biggest sectoral employer in the Yukon by far is public administration, which employs 21.1% of the total workforce (Yukon Bureau of Statistics, 2000c). In descending order, the next largest industry employment divisions are retail trade, accommodation and food services, health care and social assistance, construction, and educational services, with 11.0%, 9.1%, 9.0%, 7.9%, and 6.7% respectively (Yukon Bureau of Statistics, 2006c). Comparatively, mining and oil and gas extraction currently employ 2.4% of the total workforce (Yukon Bureau of Statistics, 2006c).

As a whole, the Yukon economy has generally been an underperformer compared to the national and other regional economies over the past several years

(YTG, 2004b). The broad reasons for this are thought to originate with population and employment declines, slow growth in industrial output, and declines in resource production (YTG, 2004b). In light of these conditions, the importance of developing oil and gas resources in the Yukon is heightened from an economic perspective. At present, given the fluctuations in oil and gas commodity pricing and the multitude of unknowns in the accounting process (e.g. infrastructure and labour costs, tolls and tariffs) it is impossible to place an accurate value on this resource for the Yukon economy. However, YTG estimates that if explored and developed, these resources could eventually generate more than \$40 million a year in royalties for the Yukon; a figure that does not take into account other sources of revenue, such as funds from direct investments and income generated from new jobs (YTG, 2005a).

To accurately measure overall economic benefits of oil and gas development in the Yukon, it is important to consider potential impacts on other sectors of the economy. As the previously shown statistics for retail trade and accommodation and food services indicate, tourism plays a significant role in the Yukon economy. The importance of the tourism industry to the Yukon Territory is quantitatively illustrated in the 2004 Yukon Visitor Exit Survey, which is a questionnaire conducted by the Yukon Bureau of Statistics to seek clarification on questions relating to the characteristics of Yukon visitation (YTG, 2004c). In the 2004 survey, it was reported that 251 704 visitors came to the Yukon. This is an 8% increase from 1999, when 232 766 visitors arrived. Comparatively, in 1994, 206 800 visitors arrived (YTG, 2004c). From an economic perspective, visitor spending totaled \$75 854 000

in 2004. This is a 12% increase from 1999, when visitor spending totaled \$67 692 000. Comparatively, in 1994, visitor spending totaled \$54 218 000 (YTG, 2004c).*

It should be noted that the preceding statistics are not only indicative of tourist arrivals and spending. The visitor survey captures subjects traveling for a variety of reasons, including business, pleasure, and personal reasons (e.g. weddings, work relocations). However, of the 251 704 visitors in 2004, the majority polled (83%) indicated that they were traveling for pleasure. This is an increase from 1999, when 81% indicated that their trip was for pleasure purposes (YTG, 2004c). The importance of tourism to the Yukon is also expressed in a 2002 year-end report, in which the YTG announced that 1900 jobs, or 11% of all jobs in the Territory, were directly dependant on tourism, and that 80% of all Yukon employees work for a business which receives some level of tourism revenue (YTG, 2002b).

Much of the tourism in the Yukon is classified as wilderness tourism. When participants in the 2004 exit survey were asked to indicate what sorts of activities they participated in while in the territory, outdoor activities proved to be very popular, with 16% indicating guided walks, 17% indicating wildlife watching, 23% indicating walking, backpacking or hiking, and 58% indicating that they visited natural attractions (YTG, 2004c). Because wilderness tourism relies upon the successful marketing of outdoor experiences, regions that embody wilderness ideals (containing limited human modification, areas of high biodiversity and/or great ecological

* All 1994 and 1999 reported spending is adjusted for inflation to 2004 equivalent Canadian dollars.

significance) are of high value to the Yukon tourism industry. For this reason, it is important that impacts upon them, such as those incurred from industrial development of oil and gas, be considered from an economic perspective.

3.2.3 Societal Characteristics

Characterizing society is a difficult task, largely because many societal attributes are neither uniform nor quantifiable, and there is a potential for subjectivity and bias to reduce any such characterization to little more than personal perspective. However, for the purposes of this study, it is important to develop at least a rudimentary understanding of some select elements that constitute Yukon society if the societal response to environmental management and oil and gas development is to be comprehended. Therefore, the goal of this section is not to provide a detailed societal examination within the territory, but rather, to briefly describe a few salient societal characteristics that directly relate to the purposes of this thesis.

Perhaps the most relevant aspect of Yukon society in relation to this thesis is the historical and contemporary cultural identification with resource discovery and development. Since the Klondike Gold Rush at the end of the nineteenth century, mining and mineral exploration and exploitation have been mainstays of Yukon culture and economy (YTG, 2005b). It can be quite confidently asserted that this historical reliance on resource extraction is firmly embedded into the collective psyche of Yukoners, and many of the Yukon's contemporary cultural icons are indicative of this. For example, the Yukon Coat of Arms (which is also displayed on

the Yukon Territorial Flag) has symbols to represent the mineral deposits found in the territorial terrain, and the gold-bearing creeks of the Klondike (YTG, 2005b). Even the territory's automotive license plates commemorate the history of resource extraction, by displaying an image of a gold prospector.

Aside from the distinct societal connection to resource extraction, there is also a societal identity relating to the wilderness characteristics of the region and the perception of being at the northern frontier of civilization. A tangible place to observe this societal identity is in the Yukon tourism industry, and in the ways in which that industry uses this identity to market itself. The marketing of a societal identity for tourism is common in many regions, and can be used as a very general descriptor of that region's social character. For instance, tourism on the east coast of Canada tends to market the Maritime culture and traditions of the region, which provides an insight into at least one societal characteristic of the region. This method, of course, cannot provide any sort of detailed accounting of society in a region (and could be argued to perpetuate a defunct stereotype), but it does provide a revealing commentary on how a society chooses to be perceived. In the Yukon, tourism is largely focused on the marketing of the wilderness experience, and as a place where wilderness and society are not so disconnected from one another (de la Barre, 2005). A strong appreciation for the wilderness, along with outdoor activities, such as hiking, canoeing, fishing, and hunting are strongly portrayed as central components within Yukon society (de la Barre, 2005).

Also noteworthy is that this societal appreciation of the wilderness is not simply rooted in the esthetics of the landscape, but also in the utility of the natural surroundings. This again can be exemplified through the Yukon tourism industry, which purposefully chooses to describe out-of-doors tourist activities in the Yukon as “wilderness tourism”, as opposed to the more common moniker of “ecotourism”. The reason for this is attributed to conflict between formal definitions of ecotourism, and the unique characteristics which define traditional and contemporary Yukon society and culture. When describing ecotourism, it is generally thought that in addition to profitability, it also contains more altruistic ambitions (Lawrence *et al.*, 1997). Specifically, ecotourism can be defined by the fundamental goals of natural area conservation, and local development (Ross and Wall, 1999). Orams (1995: 5) describes the ecotourist as one who, “...practices a non-consumptive use of wildlife and natural resources...”. However, consumptive activities, such as hunting and fishing, are important societal components in the Yukon, and subsistence lifestyles play a central role in traditional and contemporary Yukon culture.

In a sense then, the societal characteristics of the Yukon exist at the nexus between strong identification with heavy land-use and resource development, and a preserved wilderness identity. This is not to say that these two societal identities are mutually exclusive, however, the dichotomy between them is a potential source of societal conflict, which is manifest in the topic of this thesis.

3.3 Institutions and Rules

Thus far, this chapter has described select physical and cultural aspects of the case study region, to provide a contextual knowledge of the action arena, as prescribed by the IAD framework. This section will complete the contextual knowledge requirement, by distinguishing the institutions within the case study region that pertain to the thesis question, and by identifying the relevant and contextual rules that apply to the institutions and the thesis question.

3.3.1 Institutional Selection

In regard to the process of identifying institutions for institutional analysis, it is important to recognize that the goal is to select the institutional actors whose roles and interactions are meaningful to the issue being addressed. However, in the context of this thesis, it is important to bear in mind that these interactions are being discussed prior to most institutional activity, because for the most part, tangible oil and gas activity has not yet occurred in the Yukon. As this is not a retrospective analysis, it is impossible to definitively state which institutions should and should not be included at this point, as unforeseen complexities in upcoming real-world interactions may influence the exclusion or inclusion of other institutional actors, as industrial development occurs. However, the selection process is nonetheless defensible. Of the institutions selected for analysis in this thesis, many are directly implicated by the thesis question, either by being directly involved with oil and gas development, or with environmental management/protection vis à vis oil and gas development in the Yukon. For others that do not fall under this description, their inclusion was based

upon their purported relevance to the topic from preliminary data gathering and document review, and on the suggestion of the key informants (or the “snowball method”) during the interview process, as described in the methods section of Chapter 1. It is acknowledged that other independent institutional analyses of this topic may choose to include a different roster of institutional actors.

In the identification of rules, it is important to bear in mind that most, if not all, of the institutions that are discussed here have multiple rules that govern their actions in a myriad of circumstances. However, this thesis is concerned only with the contextual rules, in that they apply to the research question being addressed, and to the action arena being described in this analysis. Rules that apply to any broader scope of management are excluded from consideration within this thesis. The following section lists and briefly describes the institutional actors considered in this analysis.

3.3.2 Description of Institutional Actors and Rules

YTG Department of Energy Mines and Resources (EMR) -- Following the Devolution Transfer Agreement, the YTG formed the Department of Energy, Mines, and Resources (EMR) to manage and regulate resource development activities (YTG, 2005a). Within EMR, two separate branches were created for oil and gas, the Oil and Gas Management Branch and the Oil and Gas Business Development and Pipeline Branch, to help regulate and develop the emerging oil and gas industry (YTG, 2006a). In November 1998, a new piece of legislation, the *Yukon Oil and Gas Act (YOGA)*,

was passed by the Yukon Legislative Assembly, to provide the legislative basis for the development of oil and gas regulations in the Territory, and to guide the integration of oil and gas control between the Yukon's fourteen first nations and the YTG (YTG, 2002a).

YTG Department of Environment -- Environment Yukon is the territorial government agency responsible for protecting the quality of the Yukon environment. This department is guided by many Acts, but receives its primary guidance from four separate pieces of legislation: the Yukon *Environment Act*, from which 13 sets of environmental regulations have been developed since 1991 (YTG, 2007a); the Yukon *Wildlife Act*, which, among other things, lays out the general rules for hunting, trapping, outfitting, and guiding, and allows for the designation of habitat protection areas (YTG, 2001); the *Parks and Land Certainty Act*, which allows the establishment of parks within the Yukon, and the management of lands within those parks, in accordance with the Yukon Protected Areas Strategy (NRTEE, 2007); and the *Wilderness Tourism Licensing Act*, under which the Department of the Environment is responsible for issuing Wilderness Tourism Licenses to tourism operators (YTG, 1998).

Council of Yukon First Nations (CYFN) -- The CYFN acts as the central political organization for the first nations people of the Yukon, and acts as a network hub to individual first nations governments (CYFN, 2007b). It came about as an amalgamation of the Yukon Native Brotherhood and the Yukon Association of Non-

status Indians, in response to a need for unity among Yukon first nations, and to help facilitate land claims (CYFN, 2007b). It was formed under the *Societies Act* of the Yukon, and is directed by a constitution. CYFN also operates under the terms of the UFA (CYFN, 2007b).

YTG Department of Tourism and Culture -- Within the YTG, the body responsible for governing tourism is the Department of Tourism and Culture (YTG, 2007b). This department is sub-divided into a number of branches that serve varying functions. For issues relating to the management of the land as a resource base, it is the Policy, Planning, and Evaluation Branch that is responsible for the development of management approaches. This branch of the department deals with public issues relating to tourism, and provides analytical support for problems relating to environmental management and tourism (YTG, 2007b). Yukon Tourism administers programs under the *Archives Act*, the *Historic Resources Act*, the *Scientists and Explorers Act*, the *Yukon Arts Act*, and the Yukon Archeological Sites regulations (YTG, 2007b).

Wilderness Tourism Association of the Yukon (WTAY) -- WTAY is a member-driven non-profit organization that concerns itself with issues that affect the wilderness and adventure tourism industry in the Yukon (WTAY, 2007). As part of their mandate, WTAY endeavors to ensure that the integrity of the wilderness resource is maintained (WTAY, 2007). They try to accomplish this, in part, by engaging relevant parties in discussions on environmental protection in the context of Yukon wilderness tourism

(de la Barre, 2005). The primary piece of legislation governing wilderness tourism in the Yukon is the *Yukon Wilderness Tourism Licensing Act*. This legislation was introduced as a collaborative effort with the YTG Department of Culture and Tourism for the purpose of protecting the land resource and the safety of the industry's clientele (CTC, 2006).

Yukon Fish and Wildlife Management Board (YFWMB) -- The YFWMB is an advisory body that was created under Chapter 16 (Fish and Wildlife) of the UFA. It was established to deal with the management and conservation of habitat, fish, and wildlife across the territory. It consists of a 12 member board (six nominated by the CYFN and six by the YTG; each appointed for a five year term) who advise the federal, Yukon, and first nation governments on issues that affect the Yukon's wilderness and wildlife, in an effort to influence management decisions (YFWMB, 2007). The recommendations that the YFWMB make to governments generally focus on territorial policies, legislation, and various other efforts that guide the management of fish and wildlife, and habitat conservation (YFWMB, 2007).

Canadian Parks and Wilderness Society Yukon Chapter (CPAWS) -- CPAWS is a Canadian non-profit organization that advocates for the protection of habitat, ecosystems, and species diversity. It is made up of 13 individual chapters, including the Yukon chapter (CPAWS, 2007b). CPAWS Yukon acts as an independent environmental watchdog, and works for the protection and conservation of nature within the territory. It engages and interacts with communities and all levels of

government to bring environmental concerns to attention, institutes conservation initiatives, and cooperates with other local, regional, and national habitat conservation strategies and initiatives (CPAWS, 2007b).

Yukon Conservation Society (YCS) -- The YCS is a grassroots volunteer organization that was formed in 1968 to promote a conservation ethic in the Yukon and northern Canada. It is run as a non-profit charitable organization, and is financially dependant on donations, memberships, project funding, sales, and fundraising events. It has a mandate to encourage the conservation of Yukon wilderness, natural resources, and wildlife. Essentially, the YCS acts as a public watchdog, and advocates for environmental responsibility and sustainable activities.

Yukon Environmental and Socio-economic Assessment Board (YESAB) -- YESAB is an independent arms-length institution that administers a process for the assessment of environmental, economic, and human impacts from proposed developments on Yukon lands (YESAB, 2007). The board is composed of seven members, including a three person executive committee, all of whom are appointed by the federal Minister of Indian Affairs and Northern Development for three year terms, in consultation with the YTG and the CYFN (YESAB, 2007). The parameters of the assessment process that the board carries out are guided by the *Yukon Environmental and Socio-economic Assessment Act (YESAA)* and the regulations from it. *YESAA* was created in cooperation between the federal government, the YTG, and the CYFN, in response to the directive in Chapter 12 (Development Assessment) of the UFA

calling for the creation of a development assessment process which applies to all Yukon lands (YTG, 2007c). Coming into full effect in 2005, it is federal legislation that applies within the territory, and effectively replaces the Yukon's *Environmental Assessment Act*, which had replaced the *Canadian Environmental Assessment Act* (although the *Canadian Environmental Assessment Act* is still applicable to projects that are transboundary, have national or international significance, or do not meet the requirements of *YESAA*) (YTG, 2007c). Following the assessment process, the board presents their recommendations to the decision body (government), which considers, and then either accepts, rejects, or varies the recommendations (YTG, 2007c).

Yukon Land Use Planning Council (YLUPC) -- The YLUPC is an independent body established under Chapter 11 (Land Use Planning) of the UFA (YLUPC, 2006a). It makes recommendations concerning land-use planning in the territory to resolve resource and land-use conflicts, and establishes Regional Land Use Planning Commissions (RLUPCs) to develop land-use plans for the 10 planning regions that comprise the territory. When complete, these land-use plans will make recommendations for the use of all land, water, and resources (both renewable and non-renewable) within the borders of the Yukon (YLUPC, 2006a). Under the YLUPC's proposed regional land-use designation system, all Yukon lands will be categorized into one of five land-use categories, these being: 1) *Protected Areas*: regions where the protection and conservation of ecological integrity is the top priority, 2) *Conservation Management Areas*: regions that allow for general land-use under conservation guidelines, 3) *General Management Areas*: regions with no

identified resources or development potential, 4) *Resource Management Areas*: regions where the development of a resource is the primary priority, and 5) *Local Area Planning Units*: regions of municipal development (YLUPC, 2006b).

Table 5 provides a summary of the institutions that have just been discussed, lists the role that each institution plays with respect to the issue of environmental management and/or oil and gas development in the Yukon, and lists the documents which outline the rules that each institution must adhere to with respect to the thesis question.

Table 5: Selected Institutions and Attributes

Institution	Type	Role	Relevant Rules
EMR	Government department	Manage and regulate Yukon resource development activities	<i>YOGA</i>
Environment Yukon	Government department	Protect and enhance the quality of the Yukon environment	<i>Yukon Environment Act, Wildlife Act, Parks and Land Certainty Act, Wilderness Tourism Licensing Act</i>
CYFN	Political organization	Represent FN's interests in matters of natural resource development	UFA
Department of Tourism and Culture	Government department	Development of management approaches and analytical support for issues of environmental management and tourism	

Table 5 (continued): Selected Institutions and Attributes

WTAY	Advocacy group	Addressing issues affecting wilderness tourism operators in the Yukon	<i>Yukon Wilderness Tourism Licensing Act</i>
YFWMB	Mandated body	Advisory body for matters relating to conservation and management of Yukon fish, wildlife and habitat	UFA Chapter 16
CPAWS	Advocacy group	Yukon-specific environmental advocacy	
YCS	Advocacy group	Yukon-specific environmental advocacy	
YESAB	Mandated body	Assessment and advisory body for matters relating to environmental and socioeconomic effects of Yukon resource development projects	<i>YESAA</i> UFA Chapter 12
YLUPC	Mandated body	Advocate and facilitate land-use planning for Yukon land	UFA Chapter 11

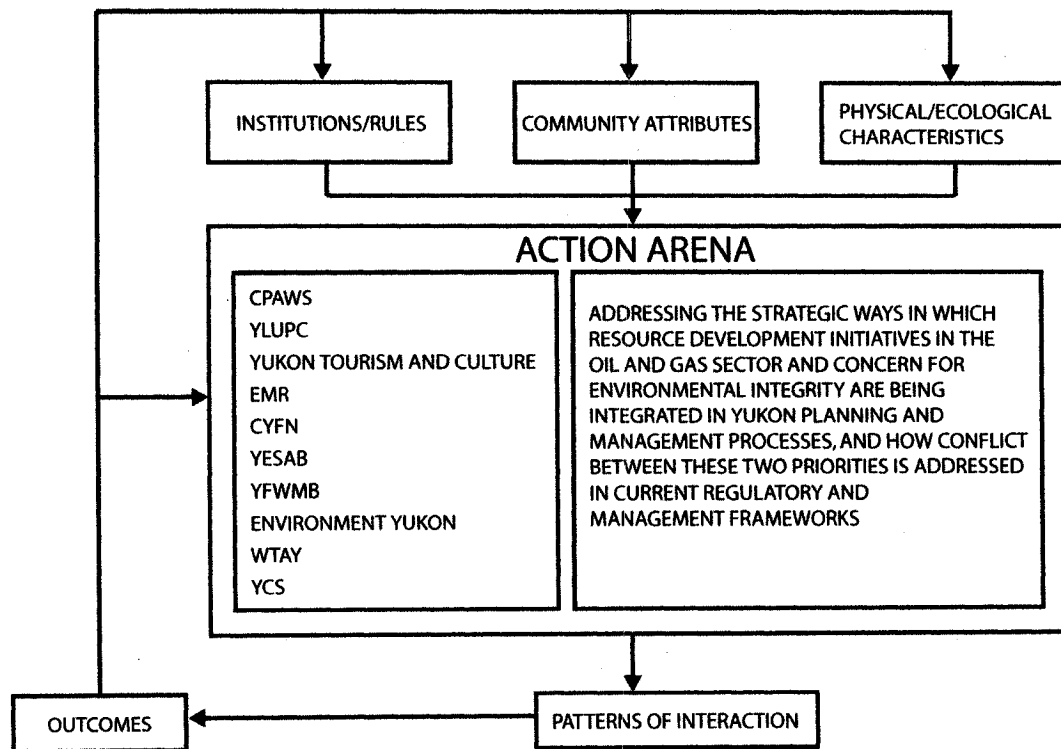
Having described select physical/ecological attributes, community attributes, and institutions/rules of the case study region, the following chapter of this thesis will incorporate this information as prescribed by the IAD framework to analyze the interactions among these variables in relation to the research topic.

4 INSTITUTIONAL ANALYSIS

Concerns are being voiced regarding the impacts of oil and gas development in the Yukon. However, as was outlined in Chapter 1, *YOGA* states that oil and gas development is to proceed in a way that is consistent with the public interest, by considering multiple priorities in an integrated fashion within the oil and gas decision-making process (YTG, 2002a). In order to distinguish if and how this objective is being met, this thesis is employing the IAD framework. In Chapter 3, the physical/ecological characteristics, community attributes, and institutions/rules of the case study region were described, constituting the preliminary inputs into the analysis. Within this chapter, the IAD framework is used to examine how these physical and cultural attributes combine with institutional components to generate particular outcomes (Ostrom *et al.*, 1994).

4.1 Action Arena

Figure 8 shows how the thesis question and the institutional actors in this study are incorporated into the action arena of the IAD framework. The action arena is composed of two components: the actors, and the action situation. According to Ostrom *et al.* (1994), the actors are institutional participants who have resources, information processing capabilities, and preferences for how the action situation is conducted. The action situation is a description of a particular problem, issue, or concern, within which the institutional actors are invested (Ostrom *et al.*, 1994).

Figure 8: IAD Framework for Yukon Oil and Gas and Environmental Integrity

In Figure 8, the relevant institutional actors identified in Chapter 3 are listed to the left, and to the right is a description of the action situation, which employs the thesis question. In describing patterns of interaction among institutions within the action arena, it is important that they be directly related to strategic planning and management processes and frameworks. Legislation and regulations are influential on the way in which the various institutions can interact with one another. The following section provides a description of the legislative and regulatory frameworks that have been established for Yukon oil and gas development, and identifies the institutions involved in creating and implementing them.

4.1.1 Legislative and Regulatory Frameworks in Decision-Making

Prior to devolution and the implementation of *YOGA*, there were 15 separate legislative and regulatory jurisdictions in the Yukon under which an oil and gas development proposal could be considered, depending on the location of the deposit: the jurisdictions of the 14 first nation governments and the jurisdiction of the federal government (YTG, 1999a). This arrangement was viewed as quite complex, from an administrative point of view, for industry to navigate. It meant that, depending on the location of the hydrocarbon deposit, an oil and gas company could potentially be required to negotiate multiple sets of regulations, permitting processes, and fees, particularly if the deposit straddled multiple jurisdictional boundaries (YTG, 1999a).

Following devolution, in order to create a more attractive and certain operating environment for industry, it was decided that the YTG and Yukon first nations would create what is referred to as a “common regime”, under which Yukon oil and gas development would proceed (YTG, 1999a). The idea behind the common regime is to have a single set of laws, operational policies, regulations, programs, and processes pertaining to oil and gas in the Yukon (YTG, 1999b). The YTG states that the advantages to a common regime are that it establishes more certainty with respect to industry regulations (thereby making the Yukon a more attractive place to invest), allows deposits that straddle administrative boundaries to be dealt with more efficiently from an administrative and environmental perspective, is more cost effective for first nations to adopt Yukon legislation and regulations than it is to have

multiple versions, and avoids legal disputes regarding the types of laws that first nations may pass regarding oil and gas activities in their jurisdictions (YTG, 1999b).

At the core of the common regime is *YOGA*, acting to facilitate the integration between the first nation governments with settled land claims and the YTG (1999b). *YOGA* was created cooperatively by a working group comprising the YTG and Yukon first nation governments, and was written to apply to all oil and gas operations in the territory, regardless of the jurisdiction within which hydrocarbon deposits are located. Because *YOGA* was done collaboratively between the YTG and Yukon first nations, its laws and regulations are meant to apply inclusively throughout the Yukon on YTG and first nation lands (YTG, 2005a). After passing *YOGA*, it was planned that first nation governments with final agreements would then, in turn, adopt this legislation and accompanying regulations on their settlement lands, with any minor modifications that those first nations saw fit. However, at the time of writing, a total of 11 first nations have settled land claims, but none have passed any legislation or regulations relating to oil and gas management.

Following devolution, the Oil and Gas Management Branch and the Oil and Gas Business Development and Pipeline Branch were created within EMR to promote, manage, and regulate the oil and gas resources within the territory (YTG, 2005a). Under *YOGA*, EMR has thus far enacted five sets of regulations to address the development of oil and gas reserves: Drilling and Production Regulations, Geoscience Exploration Regulations, License Administration Regulations, Transfer

Regulations, and Disposition Regulations (YTG, 2006a). Each of these regulations pertains to different stages of the development process, and are briefly described in the following paragraph.

Drilling and production regulations regulate ground-based activities such as well-site construction and operations, drilling operations, and hydrocarbon production (YTG, 2006a). They also apply to such activities as inspections and investigations and well-site abandonment requirements (YTG, 2005a). Geoscience exploration regulations are used to regulate the way that petroleum exploration is conducted within the Yukon, and apply to many exploration activities including geological field studies, surface and near-surface exploration, and seismic surveying (YTG, 2005a). License administration regulations are used to establish the protocols for obtaining the multiple licenses required to conduct oil and gas development operations in the territory. Throughout the development process there are multiple licenses that are required, including but not limited to Well Licenses, Water Licenses, Field Facility Licenses, and Gas Process Plant Licenses (YTG, 2005a). Transfer regulations are unique to the Yukon, in that they were established to guide the, "...administration and management of oil and gas rights that were issued by the federal government prior to devolution" (YTG, 2005a: 11). Because oil and gas rights that were granted by the federal government prior to devolution remain valid (until they expire, are cancelled, or surrendered), there was a need to regulate the way that these older oil and gas rights would be integrated within current frameworks. The transfer regulations perform this function. Finally, the disposition regulations establish the current rules

for the issuance and management of Yukon oil and gas rights. Because the YTG owns most of the oil and gas resources in the territory, it is their responsibility to dispose of the rights to industry, so that the reserves can be developed.

The disposition process is critical to attracting industry to the Yukon and to the development of the Yukon oil and gas sector as a whole, because it is through this process that lands are made available to the development process. Currently, the disposition process is being amended in the Yukon, the results of which are raising concerns that will be explored later in this chapter. The following sub-section describes the current land disposition process, and the amended process replacing it.

4.1.1.1 *Land Disposition Process*

In order for industry to explore for, and develop oil and gas resources in the Yukon, they must first acquire the rights to those resources through a disposition (YTG, 2005c). Disposition follows a competitive bidding process, and grants companies the oil and gas rights on a particular parcel of land for a specific period of time (YTG, 2005c). At the time of writing, the disposition process in the Yukon is undergoing procedural changes. During the interview conducted at EMR, both the current and the soon-to-be implemented, amended process were explained by the key informant as follows.

The current granting of dispositions occurs as a five-stage process, the first stage of which is *information gathering*. In this stage, the YTG announces that a

disposition process will be starting within a large geographic region (e.g. North Yukon, including all six of its oil and gas basins). Following this announcement, the YTG begins the process of gathering information relating to that region. In this, information is gathered from multiple government departments (e.g. Environment Yukon provides regional wildlife data, while Yukon Tourism and Culture provide regional tourism activity information), from Yukon first nations, and from other stakeholders with an interest in the matter (e.g. Wilderness Tourism Association). After all the information has been collected, EMR then compiles and analyzes it as a whole, and incorporates the spatial data into maps to identify sensitive areas and regions of concern. The time allotted for this stage is 60 days (YTG, 2005a).

The second stage is *government-to-government consultation*, involving the YTG and affected Yukon first nations. The purpose of this stage is to narrow down the selection of land for which information was gathered into parcels that could be used in a call for nominations, in agreement with Yukon first nations. This stage is allotted 60 days (YTG, 2005a).

The third stage of the process is the *call for nominations*. At this point, input has been gathered from stakeholders, government, and first nations, and certain parcels of land have been identified as appropriate for development. The call for nominations is an invitation for industry to identify which of those parcels of land they are interested in acquiring the oil and gas rights for. For this stage, industry is given 60 days to respond (YTG, 2005a).

The fourth stage of the process is the *public review*. In this stage, the public is invited to offer their comments and concerns regarding the impacts of development on those lands which have been nominated by industry. During this stage, comments may come from any groups which have already contributed input into the process (such as first nations and special interest groups), or any groups or individuals that have not yet contributed but have comments or concerns regarding exploration and development (YTG, 2005a). Following this, the Minister (of Energy, Mines, and Resources) makes the decision on whether to proceed with the process or not, whether to change the boundaries of the parcel(s), and whether any specific terms or conditions of development should be placed on specific parcels of land. This stage is allotted 60 days (YTG, 2005a).

The final stage of the process is the *call for bids*. In this stage, companies that have nominated parcels of land are invited to submit a bid on those parcels. The bid is in relation to total cash value, or the total cash value of work expenditure, with the rights to explore and produce oil and gas given to the highest bidder. This stage is allotted 60 days (YTG, 2005a).

The Key Informant noted several issues and concerns with this process. In past experiences this process has taken over 2 years from beginning to end, although on paper it is only 300 days long. The Key Informant stated that this has raised concerns among first nations and industry that the process is overly complicated and time consuming. Industry found the process long, infrequent, and not necessarily

occurring on parcels of land that were of interest. Additionally, the Key Informant states that stakeholders and first nations found it repetitive, because they were being consulted each time a new disposition process would begin.

In response, the YTG made the decision to restructure the land disposition process (Key Informant, EMR). The restructured disposition process has been called the *request for posting system*, so named because oil and gas companies will now initiate the disposition process by requesting a posting in a desired area, instead of the YTG initiating the disposition process through the call for nominations (EMR, 2005). In this system, industry itself decides which parcels they would like to nominate, and in what region they would like development to occur. In addition, any parcel of land that is not already specifically excluded from development by legislation (such as national and territorial parks, and first nation Category "A" settlement land) is available for posting (YTG, 2005a). Government will no longer determine where oil and gas companies may initially express interest in development.

The request for posting system is not only more industry led than the previous disposition system, but it is also considerably shorter. By requesting a posting and nominating a parcel of land, industry triggers a public review and government-to-government consultations (Key Informant, EMR). Each stage is still allotted 60 days, however they now occur concurrently, decreasing the total length of the process. In addition, the YTG will no longer conduct information gathering for each disposition process. Instead, it was decided that information would be collected one time, and

then made available for public use online (Key Informant, EMR). Furthermore, the analysis that the YTG was formerly doing after the information gathering for each disposition process was discontinued, as this was viewed to be the role of land-use planning, and not EMR (Key Informant, EMR). This also eliminated 60 days from the process. EMR states that the new request for posting system, under normal circumstances, will take 120 days from the time the disposition process begins until the call for bids closes (EMR, 2005).

In both the old and the new processes, disposition results in the granting of the rights to explore, drill, and produce oil and gas within a particular parcel of land for a specified period of time. However, having oil and gas rights does not, in itself, permit a company to begin oil and gas related activities. Prior to any oil and gas related activities, a company must obtain the appropriate licenses and permits under *YOGA* and its associated regulations, which in most cases will trigger an environmental and socio-economic assessment (YTG, 2006a). The following subsection describes the assessment process, and explains how it is integrated with the YTG regulatory process.

4.1.1.2 Environmental and Socio-economic Assessment

In order to develop oil and gas in the Yukon, a company must work within the regulatory process that was described earlier in this chapter. This process is led by the YTG under the regulations that were drawn from *YOGA*, and a company generally enters into these regulations by applying to EMR for a permit or license to conduct a

regulated activity (EMR, 2006). In almost all cases, the licensing or permitting of oil and gas development activities will require that an environmental and socio-economic assessment be conducted (herein referred to as an assessment).^{*} Generally assessments are required for a proposal if three conditions are met. First, the project is located in the Yukon. Second, the project is not listed as exempt from assessment by *YESAA* regulations. Third, the proponent has either applied to a federal agency (or a federal independent regulatory agency) for funds, *or* requires an authorization or grant of interest in land from a government agency, a municipal government, an independent regulator, or a first nation, *or* the proponent is a federal agency (or a federal independent regulatory agency), first nation, territorial agency, territorial independent agency, or municipal government (YESAB, 2007).

The purpose of the assessment is to ascertain any environmental and socio-economic effects that may result from a proposed development, determine whether the development should proceed and under what conditions, and then develop and recommend mitigative measures for identified impacts. During the interview at YESAB, the Key Informant related that although there is a formulaic method for assessments, each proposal is considered for its unique locational attributes in space and time. And although environmental and socio-economic effects are both meant to be considered in the process, the Key Informant states that the relative weighting of each criterion is scaleable. For example, the installation of a drainage culvert under a roadway would require less consideration of social and community impacts than the

^{*} Some development activities are exempt from assessment under the Accessible Activities Regulation of *YESAA*, however, conceivably all oil and gas projects, including exploration, well-site drilling and operations, gas processing, oil refining, and pipeline activities are subject to assessment (EMR, 2006)

construction of an oil refinery. For each project proposal, the assessors have a public consultation period, during which the public and interested groups are invited to submit comments on the development. In most cases though, the onus is on the groups to contact YESAB with their comments; YESAB will only actively solicit information for large or multifaceted projects (Key Informant, YESAB). In addition, for each project proposal the assessors perform a “scoping” process, which is the act of identifying if and how the development criteria will make other developments inevitable, as certain development activities require that associated developments be undertaken (Key Informant, YESAB). For example, if an oil refinery is proposed, the assessment of that development must incorporate the fact that pipeline infrastructure will also be required to and from that facility for normal operations to occur.

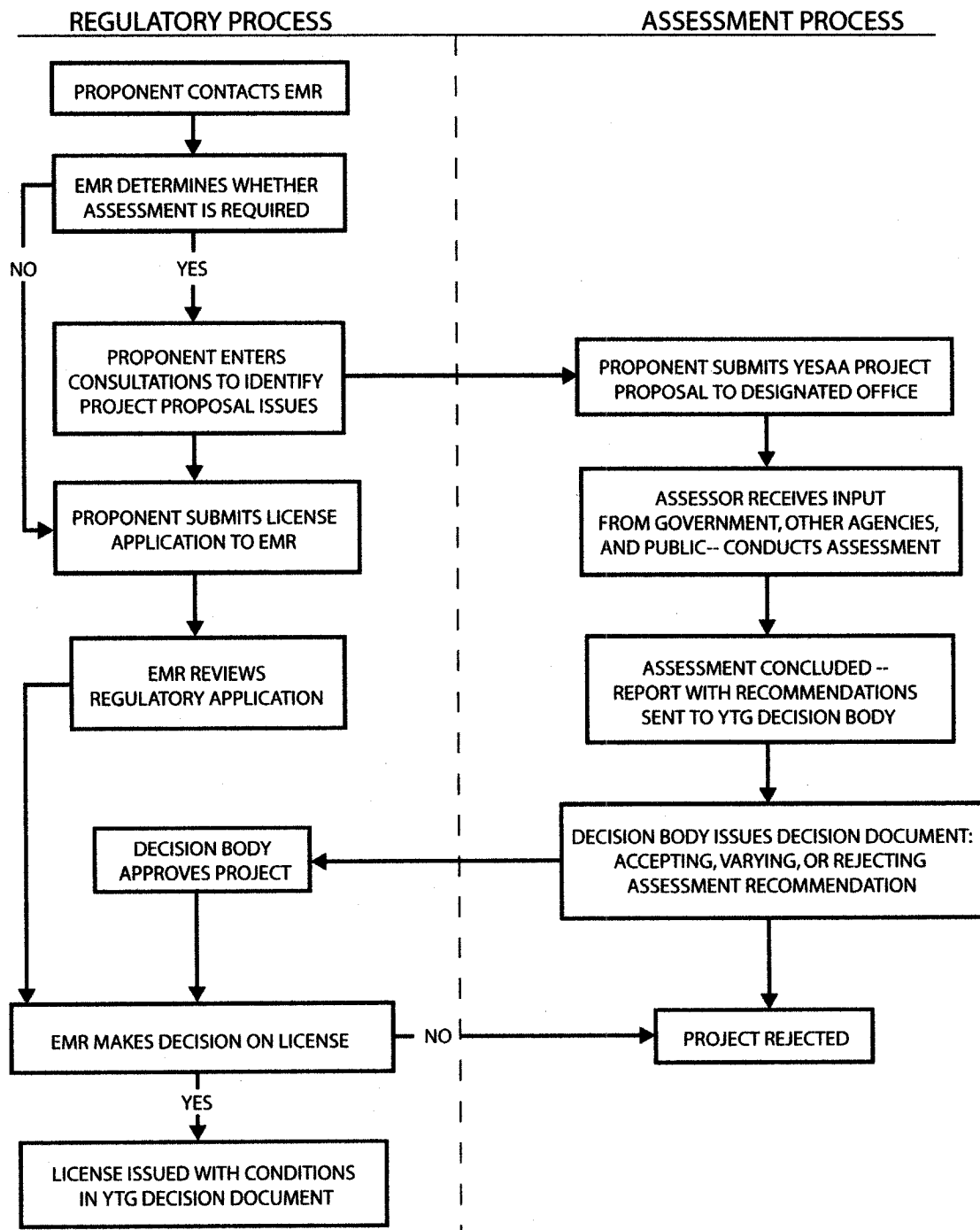
After the information is collected and public comments have been considered, the assessors review the project proposal, develop mitigation measures, and produce recommendations to the decision body regarding if and how development should proceed. By definition, the decision body is, “...the government with responsibility for the project either as a regulator, land authority, a funder or the proponent” (EMR, 2006: 7). In the case of Yukon oil and gas projects, the decision body is the oil and gas management branch of EMR (EMR, 2006).

Although an assessment can be triggered by a license or permit application, the assessment process is nonetheless separate from the regulatory process; the Oil and Gas Management Branch of EMR administers the regulatory process, while the

assessment is undertaken by YESAB assessors operating in conjunction with, but independent from government (EMR, 2006). Although these are separate processes, they do work together in the Yukon oil and gas decision-making process. Therefore, it is important that it be understood how these two processes are integrated. Figure 9 is a flowchart illustrating the stages involved in oil and gas licensing and assessment, and the way in which these two processes are integrated with one another.

In Figure 9, the proponent first contacts EMR with regard to the proposed development activity, so that regulatory requirements can be discussed and reviewed (EMR, 2006). EMR then makes the decision as to whether the proposal is subject to an assessment, or whether it is exempt.

Figure 9: Integration of Regulatory and Assessment Processes Flowchart



Adapted from: (EMR, 2006)

If it is exempt from an assessment, the proponent would then proceed to submit their license application to the Oil and Gas Management Branch of EMR, after which EMR would review the application and make a decision on whether the license or permit will be granted to the company (EMR, 2006). However, if EMR determines that the development activity requires an assessment, the assessment process becomes integrated into the regulatory process.

Following the decision for an assessment, the proponent is required to consult with relevant stakeholders (including first nations, government, and community stakeholders) to identify issues and concerns associated with the development of the project (YESAB, 2007). When this is complete, the proposal is submitted to the appropriate YESAB designated office so that the assessors can begin the assessment process.* In accordance with the assessment protocols, the assessors produce a report on the project proposal with their recommendations, and the report and recommendations are then forwarded to the EMR decision body (YESAB, 2007). EMR then considers the recommendations put forth by YESAB from the assessment process, and makes a decision as to whether the development will proceed. It is important to note that the decision body is not required to follow the recommendations included in the assessors report. It has the option of accepting, rejecting, or varying this advice (EMR, 2006). Once it has done so, EMR then decides whether the project will proceed, and what terms and conditions are to be

* There are six assessment districts in the Yukon, with one designated office within each district (YESAB, 2007)

placed upon the license. If the license is to be issued, it is done in conformity with these conditions (EMR, 2006).

4.1.2 Best Management Practices

Legislation and regulations lay out the guidelines for industry in developing oil and gas in the Yukon, but they do not provide any input into the methods that industry shall use during the process. It is often the case that there are multiple methods of accomplishing a task within the development process, and different development methods often have different impacts and effects on the landscape. For example, during the seismic stage of oil and gas exploration, survey lines (often several kilometers long) are cut through regions of tree cover to provide for lines-of-sight and equipment access (YTG, 2007d). Traditionally, these lines have been 5-8 meters wide, however, there is new mechanical equipment available which requires far less width, meaning that the total area of vegetation clearing can be greatly reduced (YTG, 2007d). There are several reasons why industry may or may not choose to use new technologies such as this (including increased cost, familiarity with practice), however, from an environmental standpoint, the lower impact method would constitute the best management practice (BMP) for that particular activity. In this respect, EMR defines BMPs as, "...any kind of existing or new practices that will reduce the time, intensity or duration of the footprint or effect on the land base and/or the users of that land base" (YTG, 2007e: 4).

Currently EMR is developing a suite of BMPs for the Yukon, to be used by industry while conducting oil and gas development (YTG, 2005a). Their approach is to develop them from an integrative perspective, considering regionally specific environmental and social attributes, as well as the interests and benefits of having an expanding oil and gas sector in the territory. In this respect, BMPs are not meant to champion zero industrial risk; they are development orientated, with the goal of mitigating the potential for deleterious consequences (YTG, 2007f).

For the BMP project, regionally specific information is being collected and compiled to document ecological, cultural, and geographic sensitivities throughout the territory. With this information, resource management objectives and BMPs to help meet these objectives are being put forth (YTG, 2007f). In this respect, the BMPs that EMR is constructing are objective-based (in that they present a management objective, and provide suggestions on how to achieve it), rather than prescriptive (in that it is not dictated to industry how they must go about achieving a management objective) (YTG, 2007e). Information is made available, and suggestions are offered as to how development can be made most appropriate to a given region, while remaining consistent with the resource management objectives for the landscape. In doing so, the agenda is both to contribute to the development of the oil and gas industry of the Yukon, while conserving and protecting the ecological and cultural sensitivities of the territory (YTG, 2007f).

BMPs are being developed in consultation with other branches of government, first nations, and special interest groups, and at the time of writing are yet to be completed (YTG, 2007f). Currently, there are three sets of BMPs available online: Seismic Exploration, Heritage Resources, and Wilderness Tourism. As BMPs continue to be developed and adapted, there are plans to make them available to industry and the public via a web-portal. This portal will contain reference documents and interactive applications for users to determine how BMPs relate to the specifics of particular development initiatives (YTG, 2005a).

It is important to note that the use of this information, and the application of BMPs in the development process, are not required of industry. BMPs are not regulated, and compliance with them is neither measured nor enforced. In the interview with the EMR Key Informant for BMPs, it was asked what, in the absence of regulation, would prompt industry to utilize BMPs. The Key Informant responded that industry could use BMPs as a tool to manage risk and to make decisions. With the information contained within the BMP web-portal, industry decision-makers can determine if operations within a given region are potentially contentious or onerous, and may be able to better determine the risks associated with regional industrial developments (Key Informant, BMP).

Additionally, the Key Informant stated that BMPs have the potential to introduce greater efficiency and expediency to the regulatory process, which is attractive to industry. During the acquisition of licenses and permits, applicants are

often required to provide pre-planning information about the regional attributes of the permit location. This requires time and inputs on the part of industry to compile, and further time and input from government to fact-check and verify. By using BMP information, industry has readily available regional information to draw from, and government can easily source and verify the data, streamlining the regulatory process (Key Informant, BMP).

Although BMPs are not regulated, the Key Informant commented that aspects of BMPs could be written into the terms and conditions of a license or permit, if a company has made reference to them in the license application. In this way, BMPs can become an enforceable provision in the land-use license or permit (Key Informant, BMP).

Having described the processes and institutional actors that lead Yukon oil and gas decision-making, the description of the action arena is complete. The remainder of this chapter will be devoted to describing the patterns of interaction that occur among the institutional actors in the context of the thesis question and decision-making protocols.

4.2 Patterns of Interaction

In the previous sections of this chapter, processes that govern the way in which oil and gas development will proceed in the Yukon were explored, revealing the central roles of legislation, the regulator and the regulatory process, and the

assessment process. Together, these processes constitute the institutional framework for oil and gas development in the territory; a framework which has been designed and organized to facilitate the development of the Yukon oil and gas sector in every respect. Therefore, it is within the context of this institutional framework, and the decision-making protocols contained within it, that issues relating to the integration of environmental concern and oil and gas development must be addressed.

In reference to the IAD framework (Figure 8), the Yukon oil and gas institutional framework is the overarching process used to dictate the patterns of interaction that will occur among the institutional actors in regard to the action situation. In Chapter 3, the institutional actors were identified and grouped into three categories (government departments and political organizations, mandated bodies, and advocacy groups) based upon their attributes (see Table 5). The remainder of this chapter will work within these categories to identify the patterns of interaction among the institutional actors in relation to oil and gas development and environmental management, and the overarching institutional framework.

4.2.1 Government Departments and Political Organizations

4.2.1.1 Department of Energy, Mines and Resources (EMR)

In considering how EMR addresses environmental concerns over oil and gas development, it is important to consider the multiple roles it plays within the institutional framework. In regards to the development of the territory's oil and gas sector, EMR is a promoter and a proponent of development. Much of this agenda is

undertaken by the Oil and Gas Business Development and Pipeline Branch of EMR, whose mandate it is to, "...encourage the development of Yukon's resource potential and emerging oil and gas industry" (YTG, 2005a: 7). In regard to the regulatory process, EMR is also the regulatory body responsible for the formation and application of regulations under *YOGA*, and for the issuance of licenses and permits under these regulations. With these multiple roles within the oil and gas sector, EMR is an integral component of the Yukon's oil and gas institutional framework; and therefore, when one is considering how various institutional actors work within the institutional framework to address environmental concerns, in many respects one is considering the way various institutions can address their concerns with EMR.

Although EMR is both a promoter and a regulator of the oil and gas sector in the territory, it is also tasked with addressing environmental concerns relating to sector development, which it can do in a few different ways. First, EMR can address concerns in the disposition process. Although industry can now nominate nearly any parcel of land (under the request for posting system), the final decision as to whether a parcel of land will be put forth in the call for bids rests with the Minister. In this respect, EMR has the ability to immediately put to rest any environmental concerns surrounding developments on a particular parcel of land, by simply not permitting development to proceed. If development is allowed to proceed on a parcel, EMR can address environmental concerns by accepting the environmental recommendations outlined within the environmental and socio-economic assessment report put forth by YESAB. The assessment's recommendations are advisory, and the decision whether

to accept, reject, or vary them rests entirely with EMR. Finally, EMR has the ability to address environmental concerns through the continued development and refinement of BMPs. By encouraging the adoption of BMPs into development proposals, EMR can influence the way that regional environmental sensitivities are addressed by industry. It must be noted that the adoption of BMPs is not regulated, and because of this EMR can provide no guarantee that environmental concerns will be addressed through this mechanism; however, as discussed above, EMR does have the ability to include BMPs as a condition of the licenses it issues under *YOGA*.

4.2.1.2 Council of Yukon First Nations (CYFN)

Similar to EMR, the CYFN, in addition to being a stakeholder in Yukon oil and gas development, was also involved in the formation of the institutional framework that governs oil and gas development in the Yukon; this involvement being their participation in the formation of *YOGA* and the common oil and gas regime, as described earlier in this chapter. Therefore, Yukon first nations have had an opportunity to address concerns for environmental management and oil and gas development during the formation of the institutional framework, as opposed to only being able to work within the framework, as is the case for many other stakeholders. Beyond this initial input, when environmental issues and concerns are raised by Yukon first nations regarding oil and gas development on settlement lands, there are some other options available to address them.

First, in most instances the regulatory process allows for certain concerns to be addressed (see Figure 9). Once a company enters into the regulatory process (often by applying for a license or permit) and it is decided that an environmental and socio-economic assessment is necessary, the developer is then required to consult with first nations to identify any outstanding issues and concerns (EMR, 2006). Furthermore, once YESAB has begun the assessment process for a project proposal, there is a mandatory time period during which public comment is accepted and reviewed. This stage of the assessment process can also be used by first nations to express issues or concerns (YESAB, 2007). However, on occasions where an assessment is not deemed to be necessary to the issuance of a license or permit, the applicant is not required to further consult with first nations.

Second, first nations have the opportunity to enact their own laws and regulations on settlement lands in a way that would address their environmental concerns, providing that they have a Self-Government Agreement in place (CYFN, 2007a). As party to the working group that developed the common regime framework for Yukon oil and gas development, it would be expected that any such laws would closely mirror or replicate *YOGA*, as the point of establishing the common regime was to create a single legislative and regulatory oil and gas environment for the Yukon (YTG, 2005a). However, there is nothing preventing first nations that adopt the common regime from incorporating additional environmental management conditions or protocols into their legislation and regulations. Of course, this option is only applicable to those first nations that have completed land claims,

and have enacted a Final Agreement and a Self-Government Agreement (CYFN, 2007a).

Finally, for first nations that have settled land claims agreements, there is an additional circumstance that would allow for environmental concerns to be addressed within the institutional framework. The UFA specifies that Yukon first nations will receive a total of 41 595 square kilometers of settlement land (or approximately 8.5% of total Yukon lands) as land claims are finalized (Canada, 2007). With regard to the development of natural resources, these settlement lands are divided into two categories: Category “A” settlement lands and Category “B” settlement lands. On Category “B” settlement lands, the first nation has ownership of the surface of the land, but the YTG remains the owner of what lies beneath the surface (Canada, 2007). On these lands, the first nation is responsible for authorizing surface access to the resource, but not for authorizing the development of the resource itself (YTG, 2007g). On Category “A” settlement lands, the first nation has complete ownership of both the surface and the sub-surface rights of the land, which includes ownership of any oil and gas resources that happen to be there (Canada, 2007). On these lands, the first nation is responsible for authorizing the development of any oil and gas activities that may occur there (YTG, 2007g). Therefore, if a first nation had unresolved concerns about environmental management and industrial development on Category “A” settlement lands, they could address environmental concerns by simply not authorizing development on these lands. However, the instances where this option would be applicable are likely to be rare, as Category “A” settlement lands constitute

approximately 6% of the total Yukon land area, and only a portion of those are likely to be of interest to the oil and gas industry (YTG, 2007a).

4.2.1.3 *Environment Yukon*

Environment Yukon is the YTG department responsible for the, “...conservation of resources and the protection and maintenance of biodiversity” (YTG, 2006b: 1). Included in these responsibilities are the protection of fish and wildlife, habitat, and the protection and monitoring of water quality and quantity (Key Informant, Environment Yukon). Because oil and gas development has the ability to adversely impact any and all of these components of the Yukon environment, Environment Yukon has an interest in the way in which development proceeds in the future.

During the interview at Environment Yukon, the Key Informant was asked what issues or concerns the Department has regarding oil and gas development, and if there were regions of particular concern. In response, the Key Informant stated that their concerns were twofold. First, Environment Yukon has regionally-based concerns guided by their mandate. These concerns are generally centered on wilderness values, and consider the impacts of oil and gas development on habitat and biodiversity conservation, water management, and species-specific impacts (YTG, 2006b). However, in addition to these wilderness values, Environment Yukon also places a priority on the protection of certain human values through wilderness preservation, such as hunting, fishing, trapping, and wilderness tourism, as the

Department is (at least partially) responsible for regulating and administering these activities in the territory (YTG, 2006b). These concerns are emphasized in certain areas, such as regions of high species diversity, those of particular ecological significance (such as rare or fragile ecosystems), and key wildlife habitats and corridors (Key Informant, Environment Yukon). In regions such as these, Environment Yukon places a greater priority on addressing the potential impacts of development (Key Informant, Environment Yukon).

The second concern that Environment Yukon has regarding oil and gas development is the potential for cumulative impacts from initial developments (Key Informant, Environment Yukon). When introducing developments to new regions, there is the potential, and perhaps the likelihood, for these developments to instigate (or require) further developments. As one development leads to another (for instance, the development of a well-site requires the construction of a road, which in turn provides hunting access which was previously not there), the ecological footprint attributable to the original development continuously expands; and although the impacts of the original development may be relatively straightforward to identify and plan for, the cumulative impacts may be far less predictable (Pembina Institute, 2004). In addition, there are fears that as impacts accumulate in a region, the arguments for disallowing further developments progressively become weaker. For example, it is easier to argue against the initial introduction of a stretch of road into an ecologically sensitive region, than it is to argue against another road in a region that already has several (Pembina Institute, 2004).

The Key Informant was then asked how these two sets of concerns (regional and cumulative) are being strategically addressed by Environment Yukon, to which came the following response.

During the disposition processes held thus far in the Yukon, EMR has consulted with Environment Yukon during the information gathering stage of the process to determine which geographic regions should be included at the call for nominations stage of the process (Key Informant, Environment Yukon). This has typically occurred as an open-discussion meeting over a few days, involving representatives from EMR, Environment Yukon, and a variety of specialists (e.g. wildlife biologists, hydrologists), to identify regions of concern and discuss options for development (Key Informant, Environment Yukon). Following this, the Ministry (EMR) considers the input in their decision-making. Additionally, the concerns of Environment Yukon may also be worked into the permitting process. By submitting regionally specific concerns and information to EMR and YESAB during the project review and assessment stages of the regulatory process, mitigations may be incorporated into the terms and conditions of licenses and permits. However, it is for EMR to decide whether or not this occurs (EMR, 2005). These processes are utilized to address both regional and cumulative concerns, but the Key Informant expressed that because the disposition and the regulatory processes address developments on a case-by-case basis, cumulative impacts may not be adequately considered (Key Informant, Environment Yukon).

4.2.1.4 *Department of Tourism and Culture (Yukon Tourism)*

As described in Chapter 3, the tourism industry is of substantial economic importance to the Yukon Territory. And although there are many attractions and activities that bring visitors to the Yukon (e.g. museums, historic sites, shopping, gambling), much of what occurs is wilderness tourism, which is an expanding segment of the territorial tourism industry as a whole, and has year-round significance (YTG, 2007b).

Wilderness tourism encompasses a wide variety of landscape-based outdoor activities, including but not limited to: guided and self-guided canoeing, rafting, motorized boat tours, horseback riding, hiking, wildlife and landscape viewing, fishing, skiing, mountaineering, snowshoeing, and snowmobiling (YTG, 2007f). This diversity of wilderness tourism activities requires a diversity of environmental requirements. For instance, activities such as cross-country skiing, dog-mushing and snowshoeing may be preferable on wooded trails, whereas wilderness viewing and photography may require unobstructed viewscapes. Furthermore, certain activities require very specific landscapes, such as rugged topography and watercourses, as is the case for mountaineering, canoeing, rafting, and kayaking (YTG, 2007b).

Although many Yukon regions may be suitable for outdoor activities, Higham (1998) notes that as a general rule most wilderness tourists enjoy regions which embody wilderness ideals, such as areas of high biodiversity and/or great ecological significance. Essentially, it is not just the activity (e.g. canoeing), but rather, the

activity combined with the natural environment of the north (e.g. canoeing in unobstructed wilderness), which together constitute the unique wilderness tourism “product” offered in the Yukon (Key Informant, Yukon Tourism). Therefore, management of the Yukon environment is very closely tied with management of the Yukon’s wilderness tourism industry.

During the interview with Yukon Tourism, the Key Informant was asked to comment on the potential for oil and gas development to impact upon the wilderness tourism industry and economy of the Yukon. Key Informant responded that, despite the central importance of their industry to the economy of the territory, they are aware that the economic potential of oil and gas sector development may come to out-value their use of the landscape in certain areas, and that industrial development will inevitably proceed in regions of the territory. For this reason, Yukon Tourism is currently taking the approach that compromise will be required within their industry, and that some wilderness tourism regions may be lost to industrial development, so that others may be retained (Key Informant, Yukon Tourism).

When asked how Yukon Tourism plans to work to minimize conflict between wilderness tourism interests and the oil and gas sector, the Key Informant responded in three ways. First, Yukon Tourism has been working with the YLUPC and planning commissions to integrate their concerns into the land-use planning process. Thus far, they have been holding regular meetings with the North Yukon Planning Commission and the Peel Watershed Planning Commission to provide input into the value and

requirements of wilderness tourism within these planning regions. To date, the Key Informant states that Yukon Tourism is satisfied with the ways that their concerns have been integrated into these forthcoming land-use plans.

Second, Yukon Tourism is involved directly with EMR in various capacities. Chiefly, they have cooperated with EMR to produce a BMP document for wilderness tourism (Key Informant, Yukon Tourism). This document provides best practices for development concerns regarding Yukon trails, lakes, river corridors, wilderness tourism infrastructure, and wildlife/human interactions (YTG, 2007f). This information will be made available to industrial developers to use at their discretion if and when oil and gas development commences (Key Informant, Yukon Tourism). Yukon Tourism also works to stay informed of oil and gas planning by being attentive to, and providing input into, disposition processes and environmental and socio-economic assessments. The Key Informant related that during a previous disposition, Yukon Tourism expressed considerable concerns regarding certain proposed bid locations while EMR was conducting the information gathering phase of the process; these locations were subsequently dropped from the call for bids. Yukon Tourism also provides information to YESAB regarding wilderness tourism interests when project proposals are open for comment in the assessment process (Key Informant, Yukon Tourism).

The third way that Yukon Tourism can address concerns is through political means. This may include appealing to elected officials to advocate on behalf of the

tourism industry, if development conflicts could not be resolved through the aforementioned strategies (Key Informant, Yukon Tourism).

4.2.2 Mandated Bodies

4.2.2.1 Yukon Fish and Wildlife Management Board (YFWMB)

The YFWMB was established under Chapter 16 (Fish and Wildlife) of the UFA as, "...the primary instrument of fish and wildlife management in the Yukon" (Canada, 2007: 16.7.0). As such, the YFWMB does not speak directly to issues relating to oil and gas development in the territory; rather, it primarily addresses issues relating to fish, wildlife, and habitat, and deals with oil and gas development only if these primary concerns are compromised by it.

The powers and responsibilities of the YFWMB are described within the UFA as follows: "The Board, acting in the public interest and consistent with this chapter and taking into consideration all relevant factors... may make recommendations to the Minister, to Yukon First Nations and to the Councils, on all matters related to Fish and Wildlife management, Legislation, research, policies and programs" (Canada, 2007: 16.7.11). Beyond this mandate, there are no specific procedures in the UFA to guide the YFWMB in dealing with oil and gas issues. However, during the interview at YFWMB, the Key Informant was asked to comment on how the impacts of oil and gas development on fish and wildlife are being addressed through the agenda of Chapter 16 (of the UFA). The Key Informant responded that in their approach to management issues, they endeavor to adhere to their mandate by acting in the "public

interest”, and by being guided by public opinion where it is practical and prudent. In the case of oil and gas, the YFWMB’s approach to acting in the public interest has largely been manifest through public education, and attempts to communicate to the Yukon population how industrial developments could affect wildlife and habitat (Key Informant, YFWMB). In doing so, the public is enabled to make informed judgments regarding how development should proceed with respect to fish and wildlife. To this end, the YFWMB has been involved in conducting community tours that address development impacts, and in publishing and distributing information packages dealing with the effects of oil and gas activity on fish and wildlife (YFWMB, 2002). When the public interest has been ascertained, the YFWMB may then act on behalf of the public by making recommendations to the Minister (EMR) regarding policies for managing the impacts of hydrocarbon development on fish, wildlife, and habitats. The Minister then has the authority to accept, vary, set-aside, or replace these recommendations (Canada, 2007: 16.8.4).

When questioned about whether YFWMB has experienced or foresees any issues or conflicts with regard to their role in oil and gas development, and fish, wildlife, and habitat management, the Key Informant responded in two ways. First, YFWMB sometimes finds itself in conflict with the people of the Yukon. The Key Informant elaborated by stating that the Board tries to ensure the conservation of wildlife and habitat in the public interest, but that the public interest does not always reflect an ethic of conservation. For example, seismic cut-lines offer new access to wilderness areas to industry and the general public (among other effects), which

carries a potential for adverse environmental impacts. In an effort to mitigate these impacts, YFWMB has involved itself in efforts to curb the use of off-road vehicles (e.g. ATVs) on these cut-lines (Key Informant, YFWMB). However, the Key Informant stated that although most Yukoners seem to be in favor of mitigating the environmental impacts of oil and gas development, their efforts to halt ATV use were met with strong public opposition. Yukoners voiced that they would not accept being restricted or limited in where they were permitted to drive off-road vehicles. The Key Informant speculates that this is reflective of the social characteristics of the Yukon (i.e. the “Yukon persona”), in which there is a strong desire to preserve personal freedoms, and the “frontier” existence. Thus, when environmental management requires the sacrifice of personal freedoms, YFWMB sometimes finds itself in a position of conflict (Key Informant, YFWMB).

Second, because the policy recommendations of YFWMB are only advisory in nature (and sometimes not followed), they can find themselves in conflict with the YTG (Key Informant, YFWMB). Of course, the YTG is working within its legal right to decide which recommendations to follow; however, the Key Informant expressed that it is difficult to consistently establish policy recommendations that are suitable to government, because of the different agendas of successive Yukon governing parties in recent years. In their experience, YFWMB has found that left-leaning parties and right-leaning parties tend to be responsive to their recommendations in different respects, which brings an unwieldy political perspective to fish and wildlife management in the territory (Key Informant, YFWMB).

4.2.2.2 *Yukon Environmental and Socio-economic Assessment Board (YESAB)*

Unlike many of the institutional actors being analyzed in this thesis, YESAB does not approach Yukon oil and gas development with any particular political, economic, or environmental agenda. Rather, as the facilitator of environmental and socio-economic assessments, they are required to take an objective stance on development project proposals, and to evaluate the potential impacts of each proposal independently without bias (Key Informant, YESAB).

The role of YESAB in oil and gas development, and the way that it is integrated into the institutional framework was described in detail at the beginning of this chapter and will not be repeated here. In this section, it is sufficient to state that in carrying out assessments, YESAB is integrated both with government (as an advisory body in the regulatory stages of the development process) and with other stakeholders (as a forum where issues and concerns can be voiced for consideration by assessors and regulators); but at the same time, makes recommendations independent of government and stakeholders (YESAB, 2007).

In the assessment process, YESAB is mandated to consider both environmental *and* socio-economic aspects of development. During the interview at YESAB, the Key Informant was asked whether the need to evaluate these sometimes disparate aspects of development was a conflict of interest in any respect. In response, the Key Informant stated that assessors often find themselves playing the role of adjudicator. Whenever stakeholder comments are submitted to YESAB on

project proposals, they are considered; and in the experience of the assessors, the most vocal stakeholders often represent the extreme point of view (Key Informant, YESAB). The Key Informant states that their challenge is to listen to these inputs, determine what merit to give them, and decide if there is objective information contained within them that could lead to YESAB producing a more defensible conclusion with respect to a particular recommendation. And because extreme positions are often expressed on either side of an issue (e.g. environmental conservation vs. socio-economic development), the challenge lies in taking both sides into consideration and finding the middle ground between them. In this respect, there is no conflict of interest; but rather, a requirement to act objectively from multiple perspectives (Key Informant, YESAB).

The Key Informant was also asked to comment on the receptiveness of decision-bodies to their recommendations and mitigation measures. The Key Informant responded that when YESAB first began to conduct assessments, they found that their recommendations were eliciting more variances and rejections (as opposed to acceptances) than they had anticipated. When asked why this was the case, the response was that it wasn't that regulators were necessarily opposed to their recommendations, but that many of their recommendations did not coincide with the powers of regulatory regime(s) (Key Informant, YESAB). YTG commented that many of the recommendations were difficult to accommodate in the mandates of various departments. The Key Informant noted that YESAB makes recommendations regardless of mandates, and that they do not necessarily consider whether a regulator

has the mandated power to implement a particular recommendation. This, however, was resulting in regulators opting to reject recommendations because pertinent legislation(s) did not enable them to follow or implement them. The Key Informant stated that it is an ongoing effort to resolve these operational difficulties, and to find mutually satisfactory ways to structure mitigations to fit with the mandates of all involved actors.

4.2.2.3 *Yukon Land Use Planning Council (YLUPC)*

Currently, the YLUPC and the regional land use planning commissions are engaged in efforts to produce regional land-use plans for the Territory, as required by Chapter 11 of the UFA. When complete, these plans will make recommendations for the appropriate use of all land, water, and resources (both renewable and non-renewable) within the borders of the Yukon (YLUPC, 2006a).

The intent is that once appropriate uses of the landscape have been decided upon for all geographic regions of the Territory, that Government and industry will adhere to the land-use plan when authorizing the use of the land and its resources (YLUPC, 2006a). However, Yukon land-use planning is far from complete, and slow to progress (Sandiford, 2006). Since the formation of the YLUPC with the signing of the UFA, only 2 of the ten planning regions have operational commissions set up, and no regional plans have yet been released*. In the interim, while land-use planning

* The North Yukon Planning Commission is anticipating the release of its regional plan sometime in 2007, and the Peel Watershed Planning Commission is expected to be releasing a draft of their plan that same year (YLUPC, 2006b)

moves forward, oil and gas developments are unconstrained by land-use plans. (Sandiford, 2006).

The concern that arises from this is whether it is prudent for such developments to proceed before appropriate uses of the land are decided upon by the YLUPC. During the interview at YLUPC, the Key Informant was asked to comment on this. In response, the Key Informant stated that land-use plans, and the land-use planning process, are not meant to be an impediment to industrial or resource development. Rather, the use and development of the land is free to proceed organically (as per existing laws and regulations) while the land-use planning process is underway (Key Informant, YLUPC). And although regional land-use plans cannot provide input into land-use before they are implemented, the Key Informant states that the appropriateness of new developments is still evaluated in the absence of land-use plans, through the development assessment process (as mandated in Chapter 12 of the UFA, and administered by YESAB). Hence, it is the position of the YLUPC that oil and gas developments should not be halted while planning proceeds, because land-use planning is operating concurrently with environmental and socio-economic assessments (Key Informant, YLUPC).

Because uses of the land are being decided independently of the planning process, the Key Informant was asked whether emerging land-uses (such as the exploration and development of hydrocarbon resources in new regions) complicate land-use planning, or affect the direction of the land-use planning process. The Key

Informant responded that, in fact, advancement in the oil and gas development process (such as the disposition of land) during the production of a regional land-use plan, is actually beneficial, as it is an indication to the planning commission of what the will of the decision bodies is likely to be. The key point is that a land-use plan has absolutely no authority or status until it is approved. Under the terms of Chapter 11, each, "...Regional Land Use Planning Commission shall forward its recommended regional land-use plan to [YTG] and each affected Yukon First Nation...[who then]... approve, reject, or propose modifications to that part of the recommended regional land-use plan..." that is applicable to them (i.e. Yukon first nations consider any Settlement Land in the regional land-use plan, and the YTG considers the Non-Settlement Land) (Canada, 2007: 11.6.0). If EMR wants oil and gas development in a region, it will issue land-use permits for that area, which is a strong indication to YLUPC of what the approval body is likely to accept for land-use plans (Key Informant, YLUPC).

The Key Informant also noted that, for the most part, land-use planning will tend to reflect the traditional uses of the land. In other words, land-use plans will be consistent with what has already been developed on the landscape, as opposed to trying to reorder or restructure existing uses of the land. Rather than altering what is already there, the influence of regional land-use plans will instead be seen on future developments, once plans have been approved and implemented (Key Informant, YLUPC).

Therefore, in the integration of oil and gas development and land-use planning, their influence on one another is reciprocal. Prior to their approval, regional land-use plans are influenced by oil and gas developments, as decision bodies (YTG and Yukon first nations) express their desires for land-use through the regulatory process, and the issuance of permits and licenses. After land-use plans are approved and implemented however, it is expected that they will in turn influence the way that oil and gas development should proceed, by making clear what is appropriate to regional landscapes and environments.

4.2.3 Advocacy Groups

4.2.3.1 Wilderness Tourism Association of the Yukon (WTAY)

The private sector became involved in directing the course of Yukon wilderness tourism in 1993, when a number of small Yukon tourism businesses, tourism operators, and hunting and fishing outfitters, collaborated to form the Wilderness Tourism Association of the Yukon (CTC, 2006). WTAY involves itself, on behalf of its members, with issues that affect the wilderness tourism industry in the Yukon (WTAY, 2006).

Similar to Yukon Tourism, WTAY represents an industry where the land itself is a resource; the quality of their product is synonymous with the quality of the landscape, and the value of the industry as a whole is adversely affected by an increased human presence in the environment. To protect the land resource from human impacts, WTAY collaborated with Yukon Tourism in 1998 to construct

legislation for governing Yukon wilderness tourism, known as the *Yukon Wilderness Tourism Licensing Act* (CTC, 2006). As stated in the objectives of the *Act*, the legislation is to, "...help sustain the wilderness quality of Yukon lands and waters [by requiring] operators to obtain a license to conduct wilderness tourism activities, and by doing so, enhance the quality of the wilderness tourism sector" (YTG, 1998: 1). Wilderness tourism operators who are licensed under the *Act* are required to conform to a set of standards and codes of conduct with respect to their impact on the landscape (WTAY, 2006). The incentive to become a licensed operator is provided through membership in WTAY. All WTAY members are required to be licensed under the *Yukon Wilderness Tourism Licensing Act*, and in return, members receive marketing support, endorsement, and advocacy from WTAY (WTAY, 2006).

The introduction of this legislation is significant to wilderness tourism management, as it provides a means to regulate activities within the industry. However, although the *Act* provides a means of regulating the impacts of wilderness tourism operators on the environment, it does not provide WTAY with a means of regulating activities outside of their own industry. Although the *Act* recognizes that, "...ecosystem integrity and other wilderness values [are necessary to] sustain continuing public access and wilderness tourism sector use" (YTG, 1998: 1), it can only provide a means of regulating the use of the environment from within. Therefore, this legislation is of no consequence to oil and gas development, or its impacts on the landscape.

During the interview with WTAY, the Key Informant was asked to comment on how they are addressing concerns over the impacts of oil and gas development. The Key Informant responded that WTAY has been working collaboratively with Yukon Tourism and EMR to construct the Wilderness Tourism BMPs, as described previously. Although they are hopeful that BMPs will be voluntarily adopted for use by industry, the Key Informant noted that they are concerned that this will not be the case. They are also concerned that the upcoming changes in the disposition process (allowing industry to nominate anywhere in the Yukon, and omitting the information gathering phase of the process) will open up key wilderness tourism regions for exploration and development, and will limit their ability to input their values into the oil and gas development process. Hence, they also work with YLUPC to provide land-use inputs in the hopes that forthcoming land-use plans will limit industrial development to “appropriate” areas, and they actively provide input to YESAB for project proposals that may impact upon the wilderness tourism industry (Key Informant, WTAY). The Key Informant remarked that they have yet to test any of the mechanisms designed to integrate oil and gas development with wilderness tourism (such as BMPs and environmental assessments) and so they have not yet formed an opinion on the utility of these measures. However, if they prove not to be adequate to protect Yukon wilderness tourism from serious adversity, the Key Informant states that they are also willing to collaborate with other groups with common interests (such as environmental advocacy groups) on landscape protection initiatives, and would consider political lobbying as well.

4.2.3.2 *Yukon Conservation Society (YCS)*

YCS is a grassroots, non-profit, charitable organization, which involves itself in advocating on behalf of conservation and environmental concerns with respect to current and emerging issues in the Yukon. As such, oil and gas development is among the issues addressed by the YCS (YCS, 2007).

During the interview at YCS, the Key Informant was asked to comment on the position of YCS regarding the Yukon oil and gas sector, how they would describe their role in the development process, and their approach in meeting any goals they might have in the context of oil and gas development. The Key Informant stated that the position of YCS is that they do not want any development of fossil fuels to occur in the Yukon, and that their role is to oppose the development of the oil and gas sector. As a qualifying remark to this position, the Key Informant noted that YCS fully acknowledges that ours is a fossil fuel dependant civilization, and that oil and gas development is necessary to a certain degree. However, by stating the extreme position (that there should be no oil and gas development in the Yukon whatsoever) YCS allows itself room to work backwards in negotiations (Key Informant, YCS). If Yukon oil and gas development is to proceed, YCS would like it to be in the most environmentally responsible fashion possible. Therefore, they are supportive of BMPs, the exclusion of exploration and development from all sensitive and/or protected regions, and the careful planning of the landscape prior to oil and gas development (Key Informant, YCS). The Key Informant states that their role in the development process is to understand the environment of the Yukon, to research and

interpret the impacts that fossil fuel development will have on the landscape and its ecology, and to communicate this information in a meaningful way. In addition, they also act as a watchdog to the industry and its regulators. In this capacity, they stay current of the regulations and processes that govern the sector, and watch to ensure they are being adhered to, and that stated intentions are being carried out (Key Informant, YCS).

The Key Informant states that YCS takes two main approaches to meeting their goals of environmental advocacy in oil and gas development. First, they work to engage politicians and decision-makers by following their actions and providing comment. The Key Informant notes that in their experience, the degree of acknowledgement and response by elected officials to the concerns of YCS varies with successive governments, with less environmental support forthcoming from more business-oriented governments. Additionally, the Key Informant notes that YCS faces difficulties in dealing with political issues, because as an environmental non-profit organization, they cannot use more than 10% of their budget on political advocacy without losing their status as a registered charity. This limits the way in which they can approach issues. Because the YTG is both the regulator and the promoter of the oil and gas sector, and because industry is not yet significantly present in the territory, any critical discussion of the Yukon oil and gas sector is largely government oriented. Therefore, they find it difficult to criticize the sector without criticizing the government (Key Informant, YCS).

The other approach they take is of engaging the general public on issues of concern. In this respect, they work in various capacities on many activities, including facilitating programs to promote household energy efficiency, participating in public forums and discussions, mobilizing media attention for various issues of concern, and encouraging people to become politically involved by writing to elected constituency leaders (Key Informant, YCS).

When asked to comment on what YCS sees as the current issues with regard to oil and gas, the Key Informant noted that oil and gas development is being permitted to proceed in advance of completed land-use plans. YCS disagrees with allowing this to happen, because of the potential for the impacts from oil and gas development to preclude the ordered use of the land among other stakeholders (Key Informant, YCS). In addition, YCS is concerned with changes to the way that dispositions will be conducted, from a government-led process to an industry-led process. They feel that this procedural change will limit the ability of Yukoners to provide input into the process, and for land-use to develop in an ordered and logical fashion (Key Informant, YCS). In reference to the institutional mechanisms for integrating oil and gas development with environmental concerns, the Key Informant states that YCS is closely watching YESAB to observe how they implement *YESAA*, and how their recommendations and mitigations are received by government, because it is such a new process. To this end, the Key Informant comments that having EMR act as the promoter, regulator, and assessment decision body is not a responsible way to construct the oil and gas development framework. The Key Informant noted that

under a framework such as this, the ability to effectively integrate YCS's priorities at the legislative and regulatory level is almost non-existent (Key Informant, YCS).

4.2.3.3 *Canadian Parks and Wilderness Society Yukon Chapter (CPAWS)*

The broad mandate of CPAWS is to work towards the conservation of ecosystems and the protection of biodiversity through the establishment of protected areas in the Yukon (CPAWS, 2007b). In this, they also engage in issues of land-use decision-making outside of protected areas, to ensure such decisions do not compromise the biodiversity or ecological integrity within current and proposed protected areas, and regions of environmental concern (Key Informant, CPAWS). In conjunction with this mandate, CPAWS is concerned with the implications of oil and gas development in the Yukon, and has raised a number of issues with regard to the development process, the way it's proceeding, and the protection of the environment within the territory (CPAWS, 2007a).

When asked during the interview to comment on Yukon oil and gas development and the role of CPAWS, the Key Informant first noted that CPAWS is not an anti-development organization. Rather, they are interested in ensuring that if development proceeds, it is done in an environmentally and socially responsible fashion, and that conservation issues are considered and acted upon with priority in the process. However, with regard to the institutional framework for Yukon oil and gas, CPAWS does not feel that this is how development has been set up to proceed

(Key Informant, CPAWS). In reference to this, the Key Informant stated that CPAWS has the following concerns.

First, CPAWS feels that there is a lack of understanding among stakeholders and citizens regarding the development process, and the true impacts of oil and gas development on the landscape. They note that this is somewhat attributable to the fact that this development is new to the territory, and most Yukoners have had no first-hand experience with it (Key Informant, CPAWS). However, the Key Informant notes that there is no shortage of information, both scientific and anecdotal, about potential impacts (particularly from western Canadian provinces), and therefore there should be no surprises in the development process. Therefore, CPAWS works to provide this awareness to Yukon residents, in what they feel is an absence of such information from the YTG (Key Informant, CPAWS). To this end, they involve themselves in hosting and collaborating in workshops, educational seminars, and public outreach initiatives for oil and gas issues (CPAWS, 2007a). In many of these forums, the Key Informant notes that there is a wide gap between community understanding and the realities of development, and that this disconnect prevents stakeholders and community members from contributing to the process in a meaningful way. They find that there is a sense of disempowerment among communities toward their ability to influence the process, which contributes to feelings of inevitability of development and resigned acceptance of environmental consequences (Key Informant, CPAWS). Also in these forums, the Key Informant notes that stakeholders and the public are often uninformed of how oil and gas

activity could affect their personal property, daily routines, and way of life, and find confusion about how the details of the development process could affect them. For instance, the Key Informant noted that many participants are unaware, and surprised to learn, of how changes to the disposition process will make nearly all Yukon lands available to industry interest (with noted exceptions, such as national parks and Category "A" settlement lands). It is the opinion of CPAWS that EMR is not providing this information in an open and forthcoming fashion (Key Informant, CPAWS).

Second, with regard to the integration of environmental concerns and development within the institutional framework, CPAWS feels that although there are strategic mechanisms for integrating these two priorities, these mechanisms do not play a significant role in oil and gas decision-making and have little opportunity to contribute in a meaningful way (Key Informant, CPAWS). In support of this statement, the Key Informant noted the following points. First, that the new disposition process considerably lessens the ability for stakeholders to input and integrate their environmental concerns from the previous process, because of the omission of information gathering, analysis, and consultation components. CPAWS feels that this amounts to a lessening of integrative capacity (Key Informant, CPAWS). Second, in reference to YESAB and the assessment process, the Key Informant notes that the recommendations and mitigations made by the assessors are advisory only, and EMR is not required to implement them prior to issuing licenses or permits. In this, CPAWS has concerns that political considerations will trump the

YESAA agenda (Key Informant, CPAWS). Third, the Key Informant notes that the YTG has invested time and resources in establishing a set of BMPs to guide industrial development in the territory and to mitigate environmental impacts, but that these are potentially rendered ineffective because their implementation is left to the discretion of industry (Key Informant, CPAWS). Essentially, this means that low-impact development is a suggestion and not a requirement in the territory. Additionally, the Key Informant notes that there is no evidence that BMPs, if implemented, will carry any degree of success. Finally, the Key Informant notes that development is being allowed to proceed in advance of land-use planning. CPAWS is a supporter of land-use planning in advance of development, which they see as a rational approach for protecting key landscape values. The Key Informant acknowledges that there is no requirement in the land-use planning provisions of the UFA for government to prohibit land disposition in unplanned regions, but also notes that there is no requirement to encourage unplanned development. The Key Informant notes that this is a matter of choice, and that the choice of EMR is that land-use planning should not interfere with oil and gas development. CPAWS is opposed to this position (Key Informant, CPAWS).

Having investigated and described the thesis question in the context of the IAD framework (i.e. having placed the oil and gas development framework into the context of an action arena, and having described the perspectives, concerns, and patterns of interaction among the institutional actors within the action arena), the

following chapter of this thesis will proceed to discuss what this institutional analysis has revealed.

5 DISCUSSION

The analysis within this thesis has been structured and carried out in accordance with the IAD framework, as previously described. This chapter continues to follow the IAD framework, functioning as the “outcomes” component of the model (see Figure 8).

In Chapter 4, the institutional framework for Yukon oil and gas development was investigated and described in detail. Correspondingly, the institutional actors with an interest or an involvement in the thesis question were also identified and investigated, and their patterns of interaction were examined. From the analysis, the strategic ways in which oil and gas development and environmental management are integrated in the institutional framework were explained, and associated issues and concerns of the institutional actors were exposed. In this chapter, these results, and the contribution of knowledge resulting from this thesis, are discussed from two perspectives: the practical and the theoretical.

From the practical perspective, the field-based information pertaining to the case study and the analysis will be addressed. Information that has emerged from the institutional analysis in Chapter 4 is synthesized and discussed categorically. There are two categories to this discussion. First, mechanisms for integration that have been identified within the study are highlighted and critiqued. Following this, the emergent issues and concerns that are manifest in the institutional framework, as described by the institutional actors, will be synthesized and considered.

However, this thesis is not only concerned with the form and function of the Yukon case study, but also more broadly with the applicability and contribution of REM theory to resource management. Therefore, a discussion from the theoretical perspective is warranted. In Chapter 2, three distinct bodies of REM theory (Integrated Management, Adaptive Management, and Conflict Resolution) were reviewed for their applicability to the topic of this thesis. Hence, these three bodies of knowledge will be discussed in the context of their relevance and contribution to the case study.

5.1 Practical Considerations

5.1.1 Integration in the Yukon Case Study

In this thesis, there are essentially two different ways in which integration is manifest within the topic. First, and most broadly, it is present as a goal; the goal of integrating the priorities or agendas of oil and gas development, and environmental protection and management. Second, and more specifically, integration emerges as an operational tool, which is used at the institutional level, to bring together distinct organizations and processes for common goals. In this case, integration can take many forms, such as inter-agency communication or collaboration, or policy-based requirements for consultation and inclusion. Although distinct, these two forms of integration are not separate. On the contrary, as this thesis has demonstrated, the latter is a primary tool for working towards the former.

From the research that has been conducted, it has become apparent that the very possibility of tangible oil and gas development in the Yukon has been greatly increased through a steady progression of integration at government and bureaucratic levels. In many respects, this began with the creation of the UFA.

The UFA was designed as a common framework for negotiating the terms and conditions of land claims and first nation final agreements with the Yukon's 14 distinct first nations (Canada, 2007). In respect to integration, the UFA has enabled inter-governmental unity among first nation governments, and between the YTG and first nation governments, in that it has provided a consistency to the structure and function of governance among Yukon first nations. Essentially, the UFA works to eliminate *ad hoc* elements and/or procedures within the new governance bodies that are being formed in the territory, and instead provides a structured and predictable governance template. The introduction of the UFA to land claims in the Yukon has effectively expedited the land claim process as well. Since the initial signing of the UFA in 1993, 11 of the 14 Yukon first nations have signed final land claim agreements, and are governing under a common rubric (YTG, 2007g). Because of this, there is a standardization to the way governance occurs in the Yukon, which can only work to facilitate and advance government-to-government communication and collaboration. Essentially, integrative capacity in Yukon governance has been increased through the UFA.

In turn, the progression of land claim agreements through the UFA has been instrumental in equipping the YTG with the authority to govern the Yukon oil and gas sector, as the control of oil and gas resources was passed to the YTG from the federal government only after Ottawa had determined that sufficient progress had been made toward settling land claims in the territory (YTG, 2004a). Prior to the devolution transfer agreement, the rights and discretion to develop oil and gas in the territory were in the hands of the federal government, during which time Yukon oil and gas development was not aggressively pursued. However, after the transfer of rights to oil and gas resources to the territory, the YTG was empowered to promote and develop the sector as it saw fit, at which time it formed the Oil and Gas Management Branch, and the Oil and Gas Business Development and Pipeline Branch within EMR, to institutionalize their resource development goals (YTG, 2005a). Concomitantly, *YOGA* was written and enacted to legislate the development of the resource.

Following the passing of *YOGA*, integration was further introduced into the Yukon oil and gas institutional framework, in the form of the “common regime”. Essentially, the common regime is the standardization of legislation, regulations, policies, and processes related to oil and gas development between the YTG and Yukon first nations with settled land claims (YTG, 1999a). This was done as a strategy for providing a consistent set of standards to the oil and gas sector across the territory, as opposed to allowing the re-invention of (possibly differing) development rules and regulations within the individual regions of governance. The agenda behind

this, it would seem, is to make investment in the territory more attractive to industry through the standardization of operational protocols.

To step back from these developments then, and to summarize them in the context of integration, the following chain of events have occurred: The common regime is providing inter-governmental integration for the purpose of facilitating oil and gas development in the territory. This strategy, and the ability of the territory to develop its oil and gas reserves in general, was enabled through resource devolution, which was itself prompted by the settling of land claims under the guidance of the UFA. These occurrences demonstrate the role that integration has played thus far in creating the Yukon oil and gas institutional framework, and in initiating the development process.

In addition to being fundamental in *creating* the institutional framework, this thesis has also shown that integration is playing a role *within* the institutional framework. For instance, the disposition process provides the opportunity for the integration of concerns among various institutional actors. In the first phase of the disposition process (the information gathering phase), integration is meant to occur between EMR and any other organization with information pertaining to the large geographic region being considered by the YTG for land parcel nominations (YTG, 2005a). This stage has the potential to involve multiple departments of the YTG, various first nation governments, select stakeholders, and special interest groups in consultations, to discuss any particular landscape characteristics, issues, or concerns

pertinent to development within the designated region. Therefore, this stage of the disposition process provides the initial opportunity to integrate environmental concerns with the oil and gas development process.

In the second phase of the disposition process (government-to-government consultations), EMR meets specifically with first nation governments within the region where the land disposition has been proposed, to narrow the initial selection of land into specific parcels, and to hear the specific concerns of the first nations (YTG, 2005a). This phase is also integrative in nature, in that it provides a dedicated opportunity to incorporate the will of the first nations into the decision of which lands ought to be included in the process.

Finally, in the fourth phase of the disposition process (public review), the general public is provided a forum in which to voice any issues or concern they have regarding development on the parcels of land that were nominated by industry during the call for nominations (YTG, 2005a). This phase acts as a vehicle for integrating the public agenda into the development process.

Essentially then, this disposition process offers three distinct opportunities for integrating environmental concerns with oil and gas development; with opportunities for integration occurring during the information gathering, government-to-government consultation, and public review phases of the process. However, as

described in Chapter 4, this disposition process is being replaced (by the request for posting system), and the new process is considerably different in terms of integration.

In the request for posting system, the first phase of the disposition process (information gathering) will no longer occur each time a new disposition is begun. Instead, this information will be collected once, and incorporated into the BMP project (YTG, 2005c). Furthermore, the government-to-government consultation phase will no longer function to integrate first nations input into which lands ought to be involved in the disposition process, because any lands not specifically excluded by legislation are undisputedly available for nomination by industry (YTG, 2005c). It would seem then, that although the request for posting system is beneficial in terms of speeding up the process and making more land available to industry, it comes at the cost of a certain degree of integrative capacity. Certainly, the new disposition process provides fewer opportunities for stakeholders to input their perspectives and concerns in the disposing of Yukon land.

To an extent, the regulatory process also has the potential to incorporate environmental concerns with oil and gas development, when an environmental and socio-economic assessment is triggered. The involvement of YESAB brings integrative capacity into the regulatory process, as YESAB is essentially a vehicle for integrating environmental and socio-economic issues and concerns with specific project proposals. However, it is the discretion of EMR to decide whether the recommendations and mitigations suggested by YESAB will be incorporated into

project proposals, which decreases the certainty of whether, and to what degree, the integration of environmental concerns will occur with oil and gas development.

In summary, it would seem that although integration has played an integral role in the development of the institutional framework for Yukon oil and gas development, the actual capacity for this institutional framework to integrate the concerns of multiple stakeholders has decreased with the changes to the disposition process, and is dependant on EMR to accept a need for integration, as suggested by advisory bodies such as YESAB and YFWMB.

5.1.2 Emergent Issues

Within this thesis, several issues and concerns relating to environmental management and oil and gas development have been discovered and discussed. In general, the dominant concerns of most stakeholders are founded on the environmental impacts of oil and gas development and/or the institutional framework itself.

In regard to the environmental impacts of oil and gas development within the territory, there are several specific concerns among stakeholders. For example, WTAY has concerns over the protection of surface water for the sport-fishing industry, and YFWMB has concerns about how seismic cut-lines will affect the migrations and distributions of northern caribou herds (Key Informant, WTAY; Key Informant, YFWMB). It can be anticipated that issues such as these will continue to

emerge as oil and gas industry increases its presence on the ground, with each requiring consideration in due time. However, among the institutional actors that were interviewed, it was not the specific impacts of development that were commonly voiced. Rather, concerns were more regularly expressed over cumulative impacts of development on the environment. Most repeatedly heard during the interviews (from government agencies, mandated bodies, and advocacy groups) was that there is a desire to prevent the Yukon from eventually resembling Alberta, where it is commonly perceived that industrial development has been put ahead of all other environmental and landscape management priorities, resulting in the widespread loss of habitat and biodiversity, and irreparable environmental degradation*. These concerns prompt the question of whether the institutional framework that the Yukon has assembled for oil and gas development has the capacity to prevent the environmental legacy of Alberta's development. Certainly BMPs are being developed by the YTG in consultation with other stakeholders (e.g. Yukon Tourism and WTAY) in advance of development to mitigate development impacts, but because these are voluntary measures on the part of industry, it remains to be seen whether they will have the capacity to mitigate cumulative impacts in a meaningful way. In order to more accurately gauge the capacity for preventing cumulative impacts, it is best to consider the legislated and regulated components of the oil and gas development framework. And it is within these components that the other dominant concerns emerge.

* It is beyond the scope of this thesis to qualify whether these statements are an accurate reflection of environmental management and oil and gas development in Alberta. Rather, they describe the perception among several of the Key Informants of how Alberta's oil and gas development has affected the province's natural environment.

Notably, there is concern among many stakeholders regarding the balance of power within the oil and gas decision-making processes. Many feel that EMR has been empowered, to the exclusion of others, to develop the oil and gas industry in the Yukon as they see fit, and that the direction the YTG wants to take oil and gas development in the territory may not be compatible with the will of other affected stakeholders and the general public. To qualify these concerns, we must consider the ways in which environmental concerns are integrated with the development process, and the power and responsibilities of EMR and the YTG.

EMR is the regulatory body for oil and gas development in the Yukon. In this capacity, EMR is responsible for the review of regulatory applications from development proponents, and for deciding whether development licenses or permits will be granted (EMR, 2006). Within the regulatory process, there is potential for environmental concerns to be integrated through the assessment process and *YESAA*. As described, *YESAB* is responsible for independently evaluating project proposals for their potential impacts on the environmental and socio-economic characteristics of the Yukon, and for issuing recommendations and mitigation measures to address these affects (*YESAB*, 2007). This provides a tangible method for considering and diminishing the environmental impacts of future developments. However, the requirement to conduct an assessment must not be confused with a requirement to abide by the recommendations of the assessors. The discretion to implement any recommendations or mitigations rests independently with the decision body, which is EMR for oil and gas sector development proposals (EMR, 2006).

With regard to fish, wildlife, and habitat concerns, the YFWMB also acts independently of the government to address issues and concerns relating to the management of the lands and the biota of the Yukon. This organization is mandated, through the UFA, to make recommendations to government concerning fish, wildlife, and habitat management issues and concerns, on behalf of the public interest (YFWMB, 2007). From their input, there is an additional source of information made available to EMR and the YTG regarding the potential impacts of oil and gas development on the territory, and a ready-made set of recommendations offered regarding how issues of conservation might be integrated into the development process. The incorporation of YFWMB recommendations with government decision-making provides an additional way in which environmental concerns can be integrated into the development process. However, it is again necessary to distinguish between a recommendation and a requirement. The final decision on whether these recommendations should be incorporated rests with the Minister (EMR) for issues of oil and gas development.

Finally, land-use planning offers a mechanism for integrating environmental concerns and industrial development within the territory. When regional land-use plans are complete, and lands have been appropriately classified, it should become clear as to where conservation planning should be focused, and where oil and gas development will be allowed to proceed. Theoretically, this should allow industries to plan for development within regions where their industry is deemed appropriate, and to avoid and respect the regions where their industry is inappropriate to land-use

planning. In short, if land-use plans are accepted and respected, they may function to mitigate and/or avert conflicts between users of the land resource. However, land-use planning is not yet complete, and therefore unable to contribute to the integration of environmental concerns with oil and gas development. In the meantime, development can proceed in advance of planning, which has been a cause for concern among many stakeholders, particularly environmental advocacy groups. Additionally, regional land-use plans must be reviewed by the decision bodies (YTG and each affected first nation) before they can be implemented, who have the authority to approve, reject, or propose modifications to any part of the plan (Canada, 2007). In this respect, government approval of industrial developments has the capacity to influence forthcoming land-use plans by indicating to planners what the will of the decision bodies are likely to be. With their authority to approve or reject regional land-use plans, government can again exercise its own discretion as to how environmental concerns are to be integrated with plans for oil and gas development.

These are mechanisms in the institutional framework which would allow government to advance oil and gas sector development, regardless of inputs from other institutional stakeholders. This ability has resulted in concerns from many stakeholders regarding the equity of the development process, as described in Chapter 4. When we consider the influence that the YTG has in the oil and gas development process, the land-use planning process, and its discretionary authority in the regulatory and assessment process and issues of fish and wildlife, it does seem prudent to question whether this consolidation of decision-making authority has

resulted in the disempowerment of other institutional stakeholders. The answer to this question, of course, will only be forthcoming when oil and gas development advances, and EMR begins to either accept or reject the inputs of other stakeholders. Until such time, it is only possible to speculate on how the institutional framework will work for or against the various agendas of the multiple stakeholders involved.

The implications of the responsiveness of government to the inputs of other agencies and organizations may be farther reaching than the environmental impacts of individual developments; rather, the willingness of government to incorporate the issues and concerns of other stakeholders may also have the capacity to impact the perceived legitimacy of environmental considerations within the development process. Within the institutional framework described in this thesis, for environmental concerns to be integrated with oil and gas sector development, two key actions are required. First, the various stakeholders involved (e.g. YFWMB, YESAB, CPAWS, WTAY, YCS, CYFN, Environment Yukon, Yukon Tourism) must make their concerns known. Second, EMR and YTG must be willing to acknowledge and act upon them. If comments from other stakeholders and mandated boards and councils are consistently rejected or ignored, it is questionable whether stakeholders will continue to invest the time and resources in providing them. This considered, it is valid to question whether it is in the best interests of the environment that EMR should act both as the promoter and the regulator of the oil and gas sector. This arrangement places EMR in the difficult position of having to balance the responsibilities of environmental considerations and regulatory requirements with the

desire to maintain development momentum. Whether the YTG and EMR can accomplish this in an equitable fashion remains to be seen; however, concerns that the government's development priorities may override its environmental responsibilities may not be made more probable, but are certainly made more possible, by the overarching power that the territorial government possesses in the development process.

The following sections will discuss the applicability and contribution of REM theory within the Yukon case study.

5.2 Theoretical Considerations

5.2.1 Integrated Management

The review of IM in Chapter 2 described how IM, as a theory and a practice, emerged as a new direction in REM, because of shortcomings in traditional management approaches. Notably, REM scholars and practitioners have observed that traditional management techniques commonly have only a single focus, and therefore fail to address the complexities and interconnections inherent at the intersection of human and natural systems (Margerum and Born, 1995).

Consequently, integration in resource management is increasingly being used to address these shortcomings, and IM is a term that is increasingly incorporated within strategic REM documents and interactions (Argent *et al.*, 1999).

Case-in-point, one of the objectives of *YOGA* is, “To provide for the economic, orderly, and efficient development in the public interest of the oil and gas resources of the Yukon consistent with the principles of sustainable development, the maintenance of essential ecological processes, and the preservation of biological diversity by...providing for integrated consideration of environmental and socio-economic effects on oil and gas decision making...” (YTG 2002: 17-18). The wording used within this legislation seems to imply a practical application of IM philosophy to Yukon oil and gas development. In light of this objective, we should seek to clarify how and where IM characteristics are incorporated into the development of oil and gas in the territory.

In Chapter 2, it was revealed that IM is predicated on concepts of coordination and cooperation among stakeholders to facilitate diverse objectives, the consideration of social, political, economic, institutional, and environmental factors as part of the managerial mandate, and the accommodation of complexity and change (Bellamy and Johnson, 2000). Furthermore, as an operationalized process, it was found that IM should be participatory, and seeking of institutional cooperation and integration as it works towards goals (Slocombe, 1993). In considering how these concepts are incorporated into the Yukon oil and gas institutional framework, there is sufficient latitude for debate. Certainly, there have been occurrences in the evolution of Yukon oil and gas development that do conform to IM characteristics. For instance, the drafting of *YOGA*, and the establishment of the common regime, occurred as a collaborative effort between YTG and Yukon first nations to integrate governance

structures towards the common objective of facilitating territorial resource development. And within the processes and protocols that have been established for oil and gas development in the territory, there are also mechanisms for integrating multiple institutions at certain junctions. For example, other stakeholders may contribute and participate with EMR in the development process by providing input in the disposition, regulatory, and assessment processes, at the appropriate times (e.g. during periods of public consultation). However, the extent to which these inputs are reflective of the characteristics of IM is open to question, and relatively unconfirmed, as there has been little oil and gas activity to speak of. At this stage, the influence of IM in Yukon oil and gas development is largely a matter of opinion; arguments in favor could refer to the common regime, and the capacity for EMR to integrate the inputs of various other institutions, such as YESAB, YFWMB, and YLUPC into decision-making. These could be seen as examples of inter-organizational coordination and inclusiveness. Arguments against could note that these participatory mechanisms are unreliable and ineffectual, as final decision-making authority invariably rests with EMR.

This debate has the potential to go back and forth, but perhaps a fair gauge of whether IM is being effectively achieved is whether all participants feel confident in their ability to contribute their opinions, and to influence the outcome of the development process. As described in Chapter 4, this was not the case among the institutional actors contacted in this study. This could be partially attributable to the fact that government plays such a dominant role in the process. As described in

Chapter 2, IM requires appropriate institutional structuring, which can be problematic with government. Certainly, the typical division of government by departments and portfolios, and guided by separate legislation, tends to nurture a stovepipe approach to management which is difficult to reconcile with IM philosophy.

Additionally, any failings in achieving the IM objective in *YOGA* may be attributable to the legislation itself. In Chapter 2, integrated management planning within Canada's *Oceans Act* was discussed, and the ESSIM Initiative demonstrated the application of the *Act's* integrative capacity. It could be argued that the success of the ESSIM process is partially attributable to the fact that the *Oceans Act* does not only specify that integrated management is to occur, but also details which parties are to be included in integrated management efforts. Comparatively, *YOGA* includes integration as an objective in oil and gas decision-making, but does not provide any specific direction on who should be included in this integration. Essentially, this leaves the "who is included in IM" question open-ended, which may contribute to inactivity and uncertainty in facilitating the process.

All things considered, it can be said that the "integrated consideration" referred to in *YOGA* and described in this thesis is not synonymous with the concepts and characteristics of IM theory. If integration as specified in *YOGA* is to be achieved in Yukon oil and gas decision-making, there are a number of challenges that will have to be overcome. First, a list of participating stakeholders will need to be identified. This may not be a simple process, as participation by any particular

organization is not mandated by legislation. Among the participating stakeholders, institutional alterations and accommodations may be required to facilitate the integration of external information and perspectives into internal operational protocols. Finally, an effective framework for facilitating inter-organizational communication and collaboration will be required, if integration is to be made systematic.

5.2.2 Adaptive Management

In Chapter 2, it was shown that AM is essentially a cyclical framework designed to reconcile managerial responsibilities with change and uncertainty, through ongoing responsiveness to monitoring and feedback (Noble, 2004). The concept behind the model is that management and decision-making will proceed under the expectation that approaches may be flawed, but that each flawed approach will yield beneficial information to be used in creating improved future iterations (Noble, 2004).

As this thesis has shown, the operational managerial frameworks within Yukon oil and gas development are, for the most part, not structured to reflect the AM model. The oil and gas regulations developed under *YOGA* are final versions, and there is no indication that they are subject to ongoing alterations as issues arise. Changes to the *Act* itself, of course, would have to be made by the Yukon Legislative Assembly in consultation with Yukon first nations, which is an ill-suited process for frequent and/or minor amendments. Furthermore, the assessment process that is

conducted for project proposals occurs only once, and prior to development. It has a single opportunity to provide input, and does not contribute to any ongoing monitoring of project details to increasingly mitigate environmental and socio-economic effects. Certainly, it could be argued that the monitoring of negative industry response to the disposition process prompted its restructuring to the new “request for posting” system, which was adaptive to the needs of industry. However, it is difficult to equate this action to the AM model, as there was no formal and ongoing monitoring and evaluation process facilitating it.

AM is not highly visible in Yukon oil and gas development; however, if it were to become an established protocol in the development process, there could potentially be two facets to its application. First, it could be applied within a policy context, as a tool for observing and reacting to the impacts of decision-making protocols. In this capacity, AM could be envisioned as an extension to the disposition, regulatory, and assessment processes, with each process being constantly monitored and revised to better reflect ongoing changes in the institutional environment. Second, it could be applied within an environmental context, as a tool for ongoing environmental monitoring and site-specific management. In this capacity, there is already an established institutional component to which AM could be immediately applied: the BMP project.

BMPs are meant to provide guidance in developing the oil and gas sector in ways which will elicit minimal negative impacts on the defining characteristics of the

region (i.e. environment, ecology, economy, culture, heritage). To do this effectively, BMPs that are being put forth must be in accordance with the *current* regional characteristics, which are always apt to change. In addition, the technologies and techniques that enable BMPs (such as new seismic techniques and equipment) are themselves evolving as technologies advance and techniques are improved. Therefore, because of these capacities for change, obsolescence is something that can be frequently anticipated for BMPs. However, if an AM model could be applied to the BMP project, it would be possible for BMPs to benefit from this change and uncertainty. There is a great capacity for ongoing feedback from current BMPs to contribute to the discovery of future best practices.

In reference to the stages of AM development (see Figure 2), the Yukon is currently at the first stage (“scope opportunities”). At this time, if AM is to be implemented, efforts should be made to identify where the application of AM strategies would be most useful and appropriate, and common goals and management objectives should be established among all involved institutional actors. However, it is important to note that in advance of this first stage, the second stage of AM development (“design policies”) has essentially been completed. Already, legislation, regulations, policies, and protocols have been established for the development and management of the oil and gas sector. Therefore, if AM is to be implemented, there will be additional challenges. As explained in Chapter 2, if AM is retrofit to a pre-existing managerial framework (as opposed to initially constructing management protocols around AM principles), it must then be made to fit within the current

system. This has potential to add administrative complexity to the process. To compensate for this additional complexity, there must be significant institutional commitment to the AM framework, and dedication to all stages of the AM process from all involved. Whether this will come about will be an observation for the future, but it would seem that there is a place for AM within Yukon oil and gas sector development.

5.2.3 Conflict Resolution

In the process of developing Yukon oil and gas, this thesis has demonstrated that multiple stakeholders could be differentially affected by any given course of action. Among the institutional actors that have been investigated in this study, there are diverse (and sometimes divergent) agendas, values, and expectations for the future.

In Chapter 2, conflict in REM was reviewed, and the nature of inherent conflict was explored. In inherent conflict, parties are fundamentally conflicted over beliefs and values, which in turn can manifest into disputes over specific management actions (Tillitt, 1999). In the case study, inherent conflict is typified by the value conflicts between oil and gas development proponents (chiefly EMR and YTG) and environmental advocacy groups. Thus far, the conflict between these groups is mostly value and priority-based, and occurring over issues of policy, as opposed to being rooted in specific development projects and initiatives, and occurring over issues of place. However, it can be anticipated that as industry begins to invest in the

Yukon, and development moves to more advanced stages, that these value-based conflicts will manifest into disputes over specific projects and initiatives.

Not all of the conflict discovered in this thesis emerges from fundamental differences in values. For instance, many of the departments and organizations that were interviewed (such as WTAY, YFWMB, Yukon Tourism, and Environment Yukon) expressed that they were not fundamentally opposed to oil and gas development, but that their concerns pertain to how oil and gas sector development may impact their own interests and agendas. In these instances, conflict is not necessarily inherent among stakeholders, but has the potential to develop as institutional actors intersect with one another. Therefore, considering the identified potential for conflict (both values and issues-based), there is clearly a need for conflict resolution mechanisms in the territory.

In the Yukon, options exist for all traditional conflict resolution methods (administrative, political, and judicial) as described in Chapter 2 (Dukes, 2004); however, at this stage of development, it is the administrative method that is most prevalent. For instance, the disposition and the assessment processes both require a period for public review when emerging concerns and conflicts can be heard, and potentially addressed, by decision-makers through administrative channels. Consultations with other first nation governments, other YTG departments, and stakeholders in past disposition processes also served as an administrative path for resolving conflicts (although the new disposition process lessens this ability).

Additionally, the assessment process itself (independent of any public inputs it may elicit), and the UFA mandated recommendations provided to YTG by YFWMB, both act as potential vehicles for resolving conflict through administrative means. To be effective, these approaches will require dedicated action at bureaucratic levels (and the elected level, in cases where the Minister has the final decision). Furthermore, they will require stakeholders to have confidence in the propensity of administrative decision-makers to address their concerns. If stakeholders lose this confidence (or if it never develops), the administrative method of conflict resolution will likely be abandoned. If administrative mechanisms for conflict resolution fail, options are available for political and judicial attempts at resolution, through the court system, and political lobbying. However, in the absence of any real industrial presence, these options are thus far mostly dormant.

Chapter 2 also discussed techniques for ADR (negotiation, mediation, and arbitration) (Mitchell, 2002). These techniques involve the consensual coming together of disputing parties to discuss and attempt to resolve their differences, without the added complexities and formalities imposed by the judicial system (Maguire and Boiney, 1994). It is yet to be seen whether these techniques will be utilized in future disputes, but one could speculate that they may be particularly well-suited to the Yukon. ADR techniques involve the congregation of disputing parties; as most of the institutional actors involved in this study are in close proximity to each other (nearly all institutions in this study are located within walking distance of one another), this may be easier to facilitate in the Yukon than in larger centers, because

actors are geographically accessible. Furthermore, because of the relatively small population in the territory, there exists a personal familiarity among many of the individuals involved (as observed by the researcher in the interview process). This familiarity may influence individual willingness to participate in ADR techniques with one's peers, despite having adversarial views.

Essentially, conflict resolution is not yet a pressing issue in the context of Yukon oil and gas development and environmental management, simply because industrial activity in the oil and gas sector is minimal. However, history has shown that oil and gas development inevitably brings conflict, as exemplified in most oil producing regions of the globe. As the presence of industry increases in the Yukon, the need for effective conflict resolution techniques will grow. Therefore, decision-makers would be well advised to prepare strategies and protocols for addressing conflicts now, before they emerge.

In summary, this chapter has identified and discussed the integration of environmental management and Yukon oil and gas development, and considered the relevance and contribution of REM theory to the case study and the thesis topic. The final chapter will conclude this study by revisiting the thesis question and objectives in light of what has been discovered, summarizing the main concerns that have been uncovered, and making recommendations for future research on this topic.

6 CONCLUSION

6.1 Summary

This thesis has endeavored to determine how environmental concerns are integrated with oil and gas development priorities in strategic initiatives in the Yukon. To accomplish this, a series of actions were planned and executed, as summarized below.

To begin, Chapter 1 provided justification for the thesis with some preliminary information, and outlined the conceptual framework and methodology that would guide the research. In keeping with the thesis outline from Chapter 1, Chapter 2 then reviewed the REM literatures most closely associated with the topic of this thesis: integrated management, adaptive management, conflict resolution, and institutional analysis. The first three literatures (IM, AM, and conflict resolution) were used both to provide the requisite foundation in theory for the situation being studied (prior to the analysis), and as comparative literatures against which the case study could be critiqued (following the analysis). The fourth literature that was reviewed (institutional analysis) provided the analytical framework that was used to address the main question and objectives of this thesis. From this literature, the IAD framework was identified, its suitability to this research was discussed, and the way in which it would be employed within this thesis was described. Following this, the case study was ready to proceed. In keeping with the criteria of the IAD framework, Chapter 3 detailed the relevant attributes of the case study region to provide context

to the case study, and the thesis question. Following this, Chapter 4 analyzed the information that had been collected through document review and interviews as it related to the thesis question, consistent with the structure of the IAD framework. In this, the institutional stakeholders and the thesis question were defined as the “actors” and the “action situation” respectively, which together comprise the “action arena” of the analysis. With these critical components identified, the patterns of interaction among the actors were then analyzed. Finally, the information that emerged from this process was discussed in Chapter 5, with recommendations to be made based upon the results.

This procedure was conducted to answer the main thesis question, and to address the thesis objectives, as described in Chapter 1. In doing so, it also became possible to identify the main concerns from the involved stakeholders that surround this issue. At this point, it is now appropriate to revisit the question, objectives, and main concerns to determine how the research has been able to respond, and as a basis for recommendations.

6.1.1 Thesis Question, Objectives, and Main Concerns Revisited

6.1.1.1 Thesis Question

To reiterate, the main question guiding this research was, “ What are the strategic ways in which resource development initiatives in the oil and gas sector, and concern for environmental integrity, are being integrated in Yukon planning and management processes, and how is conflict between these two priorities addressed

within current regulatory and management frameworks?” This is a two-part question, and in the course of this thesis, both parts have been addressed.

The first part of the question asks how two distinct priorities (environmental concerns and development initiatives) are integrated in the Yukon case study. Finding answers to this question led the researcher to explore the institutional framework for oil and gas development in the Yukon, which is composed of several distinct strategic initiatives, including relevant legislation, the common regime, the disposition process, the regulatory process, the assessment process, best management practices, and land-use planning. Among these individual components of the institutional framework, there are multiple mechanisms capable of facilitating integration in varying degrees that were identified and discussed.

To begin, mandated public review periods in the assessment and disposition processes provide a vehicle for discovering and delivering concerns to decision-makers. The assessment process itself, as required by law under *YESAA*, provides environmental information and recommendations for the strategic development of oil and gas, and oil and gas related projects (e.g. roads, cutlines, water diversions). Regulators may then incorporate these inputs into license terms and conditions, in order to make integration enforceable. The UFA also provides integrative capacity to the development process, through the establishment of the YFWMB and the YLUPC. As described, the YFWMB is mandated to act as an advisory body to signatories of the UFA on matters affecting fish, wildlife, and habitat, and as such has a role in

integrating environmental concerns with hydrocarbon development. On a territorial scale, the YLUPC is also working to integrate environment and development through their efforts to construct regional land-use plans. And, BMPs provide an opportunity for industry itself to initiate the integration of environmental management with industrial development, through the voluntary adoption of best practices on projects. In response to the first part of the thesis question then, these are mechanisms by which environmental concerns are strategically integrated with oil and gas development initiatives in the Yukon.

The second half of the question deals with how conflict is addressed within the regulatory and management frameworks that were explored. This thesis has found that answers to this half of the question are less advanced than answers to the first half. Essentially, conflict resolution in the territory is available through the traditional methods (political, administrative, and judicial), but currently there are no protocols specific to oil and gas development and environmental management that have been developed (likely because specific industrial developments are not yet occurring). It could be argued that many of the mechanisms mentioned in the first half of the question (such as BMPs) are themselves designed to reduce conflict. However, we must distinguish between mechanisms for *avoiding* conflict, and mechanisms for *resolving* conflict, because it can be detrimental to confuse the two. Conflict avoidance has the potential to be instrumental in reducing the workload for conflict resolution, but it should not be anticipated that the need for specific conflict resolution mechanisms in oil and gas development would be negated by conflict

avoidance. This thesis concludes that further efforts towards conflict resolution protocols in oil and gas development would be justified in the Yukon.

6.1.1.2 Thesis Objectives

In answering the main research question, this thesis also set out to address a number of objectives. The first was to document the unique context of oil and gas developments in the Yukon, and to highlight any associated implications. This objective was greatly facilitated by the analytical framework that was used. The IAD framework requires that physical, ecological, and community attributes be considered along with the institutions and their rules, so that institutional policy and conduct can be better understood within the context that it operates. In this thesis, unique attributes of the territory's ecology and society were explored to provide this context. From this exploration, it was found that the implications of environmental decision-making in the Yukon are subject to the unique attributes of northern ecosystems. This means accounting for factors such as permafrost, shorter growing seasons, longer regeneration periods, and lower levels of species biodiversity than one would encounter at more southern latitudes. In short, greater ecosystem sensitivities in northern locations imply greater challenges for environmentally sustainable development.

From a societal perspective, many of the attributes that constitute the Yukon's culture, community, and economy were also explored. In this, it was found that the Yukon has a number of unique attributes that are reflective of how business and

development occur there. In terms of the economy, there is little diversity to be found, and one of the largest contributors is the tourism industry. Consequently, the preservation of this industry is of great importance to the population of the territory, and the preservation of this industry implies the preservation of one of its defining products: the pristine Yukon wilderness. Culturally, it was found that the relatively small territorial population, the historical shaping of attitudes towards resource extraction, the “frontier” mentality, and a strong connection to the landscape among Yukoners all play a role in defining the societal response to oil and gas development and environmental management.

The second objective was to identify the official positions and priorities of key organizations and agencies regarding oil and gas development. This objective was also served by the IAD framework. In the “patterns of interaction” component of the analysis, these positions and priorities were identified, and the way they influenced the interactions among institutional actors was discussed. In this, institutions were classified as political organizations, mandated bodies, or advocacy groups, and in doing so, it was found that attitudes towards development were similar within these groups, with governments and political organizations most in favor of oil and gas development, and advocacy groups most opposed.

The “patterns of interaction” component of the IAD framework can also be credited with addressing the third objective, which was to identify points of conflict and consensus among institutions regarding oil and gas development and

environmental impacts. In this, it was also found that conflicting values, agendas, and opinions about how oil and gas development and environmental management should proceed were most prevalent between government and advocacy groups, while mandated bodies have varying points of conflict and consensus with government and advocacy groups, depending on the specific mandate of the institution.

The fourth objective was to explore the additional complexities associated with Yukon first nations, with respect to oil and gas development and environmental management. This was done in detail, and as discussed, the settling of land claims and the signing of the UFA were instrumental to prompting devolution, which in turn is prompting the development of Yukon oil and gas. Throughout the process, Yukon first nations have been a key component of how the institutional framework for oil and gas development has been constructed, with *YOGA* and the “common regime” set to guide how first nations will continue to be involved in the oil and gas development process.

Finally, this thesis set the objective of relating the case study to the larger theoretical body of knowledge in REM, as described in the literature review. From the information that came from document review, interviews, and the institutional analysis, it became possible to relate the theory-based literatures from Chapter 2 to the Yukon case study. From this, the applicability and utility of REM theory to the case study was evaluated and discussed.

6.1.1.3 *Summary of Main Concerns*

In researching the thesis question and addressing the thesis objectives, it has been revealed how integration between oil and gas development initiatives and environmental concerns will occur within the institutional framework, and how conflicts are currently addressed. However, the answers found in this thesis do not reveal how effective these efforts will actually be in practice. Through analysis, this thesis has shown that there are several issues and concerns with these mechanisms among stakeholders and institutional actors, regarding legitimacy, equity, effectiveness, and accountability. To summarize, the main issues and concerns that have emerged throughout this thesis are:

- That the balance of power in oil and gas decision-making is not equitable. Concerns are commonly expressed among stakeholders that there is too much decision-making capacity invested in EMR, and that they have an irrepressible authority to act regardless of assessor's recommendations and stakeholder inputs. Also, the dual role of EMR as both promoter and regulator of the oil and gas sector is a concern for many stakeholders, and is seen as an irresponsible, and even dangerous, institutional arrangement. The fear is that there is a potential for development ambitions to trump regulatory responsibilities, and that the overarching power of EMR in oil and gas decision-making could facilitate this. Essentially, it is commonly thought that there is an inherent conflict of interest in having a single department responsible for both the promotion and the regulation of a resource.

- That other institutional stakeholders are disempowered in the decision-making process by the institutional framework that has been created for oil and gas development. Specifically, there are concerns about the ability for assessments from YESAB, and inputs from mandated bodies such as YFWMB, to have a meaningful effect on the development process, given the advisory role of these organizations, and the pro-development agenda of EMR and the YTG. There are doubts about the effectiveness of assessments and recommendations because of this arrangement.
- That the new disposition process (the “request for posting” system) is significantly flawed. Concerns over the changes made to the disposition process are primarily based in the shift to an industry-led process. The issue is that this will allow industry to bid where it wants, which does not allow for a planned approach, led from within the Yukon, in the development of the oil and gas sector. This change lessens the capacity of the institutional framework to consider environmental, economic, and/or cultural sensitivities in oil and gas development. Additionally, there are concerns that the decision by EMR to halt information gathering on a project-by-project basis, and to reduce government-to-government consultation, will lessen the integrative capacity of the institutional framework, and facilitate unilateral decision-making.

- That development is proceeding in advance of land-use planning. The key issue here is that in the absence of land-use plans, industrial development will preclude the ordered use of the land among other stakeholders. In this, there are concerns that key landscape values, environmentally sensitive regions, and other economic uses of the landscape that could otherwise be planned for and preserved, are endangered until regional land-use plans are produced for the entire territory. It should be noted that this concern was not echoed by the YLUPC, who expressed that land-use planning is not meant to be an impediment to resource and/or industrial development.
- That cumulative impacts are not adequately addressed. There are concerns that the assessment process considers each project individually, but that individual projects will require and instigate additional developments in the future, which are difficult to predict and often overlooked. As developments accumulate, the size of the associated ecological footprint will increase, and the argument for disallowing further developments will be incrementally weakened. Most stakeholders stressed that they did not want the Yukon landscape to eventually mirror Alberta's industrial legacy, but many are concerned that there is little argument to support how this will be avoided.
- That BMPs have been structured to be avoidable. Specifically, the issue is that the use of BMPs is left to the discretion of industry. This is raising doubts that BMPs will be considered seriously by industry, as many BMPs

will require extra industrial inputs, such as increased expenditures and longer time-frames for project completion. Additionally, there are concerns over the fact that BMPs are not regulated. Therefore, even if industry opts for BMPs in the short-term, they have no commitment to continue using them in the long-term. This raises concerns that they will be initially adopted by industry to “get a foot in the door”, but then discontinued if and when they interfere with the bottom line.

The preceding points are issues from the case study that were repeatedly iterated in interviews and relevant literature. As a group, they constitute the central issues and concerns that have emerged from efforts toward planning and developing the Yukon oil and gas sector. The validity of these concerns will be tested as oil and gas development moves to more advanced stages, but their emergence is indicative of conflicting opinions and agendas. Certainly, it would be prudent for decision-makers to consider taking action to address these concerns, if future disputes over them are to be avoided. Therefore, as a result of these concerns, and the theoretical and practical information that has been acquired and analyzed for this thesis, the author offers the following recommendations for consideration.

6.2 Recommendations

It is hoped that this thesis will have the capacity to contribute to the case study in a positive way. In keeping with this, the following recommendations are offered for consideration:

- EMR should not serve as both the sole regulator and promoter of the oil and gas sector. This is an obvious conflict of interest which forces EMR to be accountable for both the growth and the constraint of the oil and gas sector. This conflict could be alleviated if decision-making responsibility became more decentralized, to include other government departments as final decision-makers. Specifically, the regulatory process could require joint approval from EMR *and* Environment Yukon in the issuance of licenses and permits. This would help to ensure that environmental concerns and development benefits are considered equitably in the regulatory process, when project proposals come forth. It would also add legitimacy to the regulatory process to have an impartial regulator, that is not mandated to serve as a promoter of the oil and gas sector, involved in the process.
- Yukon first nations that have settled land claims and self-government agreements should immediately begin implementing *YOGA* and associated regulations on settlement lands. The goal of the “common regime” is to integrate Yukon first nations and YTG governance protocols for oil and gas; however, of the 11 first nations currently with settled land claims, none have implemented *YOGA* thus far. The reasons for this are elusive. The researcher did not discover any particular dissatisfaction among first nations for the “common regime” arrangement, leaving one to speculate that implementation is not occurring because it is not yet needed. There is simply no pressing need for oil and gas legislation and regulations on settlement lands yet, because

there is virtually no development occurring. However, the reciprocal to this statement is that when legislation and regulations are needed, they will not be in place. By acting on this now, first nations will be better prepared for development when it does arrive. Additionally, first nations can also address any specific environmental concerns they have by incorporating them into legislation and regulations upon implementation.

- BMPs should be put forth as enforceable regulations, as opposed to voluntary industry initiatives. The BMP project itself is ambitious and commendable for the prodigious amounts of regional information it is continuing to accumulate. This information has the potential to be advantageous in integrating oil and gas development with the regional sensitivities of the Yukon, but only if it is applied. The present arrangement can only offer hope that BMPs will be utilized by industry, but a regulated approach could offer certainty. If regulated (perhaps as enforceable provisions in all applicable licenses and permits), BMPs could help the Yukon to avoid Alberta's industrial legacy of environmental degradation.
- Despite calls to halt oil and gas development in advance of planning, land-use planning (UFA Chapter 11) is not meant to be an impediment to industrial development, and given the slow pace of regional land-use planning, it is not tenable to expect all development to be halted before it is completed. When completed, land-use plans will have a role in guiding development, but until

then they have no authority. However, YLUPC expressed that the development assessment process (UFA Chapter 12) functions to evaluate the appropriateness of development *before* regional land-use plans are completed. Therefore, in the absence of regional land-use plans, it would be rational to make the mitigations that are offered by YESAB *authoritative* rather than *advisory*. Then, as regional land-use plans are completed and implemented in each planning region, YESAB could reassume the advisory role. This change would ensure that there is always an independent authoritative body reviewing the appropriateness of oil and gas development in the planning regions of the Yukon.

This thesis would also like to draw attention to the potential for REM theory to contribute to the case study situation, with the following recommendations:

- IM is an objective of *YOGA*, and therefore should be more adequately facilitated by the legislation. Specifically, parties that are to participate in integrative management efforts should be named in the *Act*, as they are in Canada's *Oceans Act*. The list of participants could be debated, but should include other ministers and departments of the YTG, municipal government representatives, affected Yukon first nations, relevant UFA mandated boards and bodies, and representatives from interested Yukon organizations and community groups. To coincide with this, a dedicated IM Forum should be established under the guidance of *YOGA*, where representatives from these

parties would be brought together to communicate agendas, objectives, and concerns, and to plan for the future. Such a forum would provide a structured integrative body to support the IM objective stated in the *Act*.

- Change must be anticipated and planned for in management frameworks. Currently, change functions as a detriment to static management frameworks, but the introduction of AM philosophy and processes to these frameworks could convert detriments into benefits, as new information could be used to re-design failing strategies. Specifically, AM processes should be incorporated into the BMP project, to prevent the obsolescence of BMPs. Such an application would likely require an increase in environmental monitoring, which could be outsourced to other IM Forum participants with scientific capacities (e.g. Environment Yukon, CPAWS), thereby contributing to AM *and* promoting integration among stakeholders.
- Even with renewed integrative efforts and adaptive strategies, conflict involving environmental management and oil and gas development should be anticipated and planned for. Therefore, traditional conflict resolution techniques (political, administrative, and judicial) should be augmented with ADR techniques (negotiation, mediation, and arbitration). If these techniques were established, they would increase the capacity for dispute resolution in the territory, and decrease the burden placed on traditional techniques. Ideally, ADR would be incorporated as a component of the IM Forum, thereby

providing a dedicated and regularly scheduled opportunity for negotiation, mediation, or arbitration, among IM representatives.

It is hoped that these recommendations will be thoughtfully examined by decision-makers and stakeholders, and evaluated for their potential to contribute to the planned and rational progression of environmental management and oil and gas development in the territory.

6.3 Limitations

Despite the ways in which this thesis has enabled the main research question and objectives to be addressed, it is important to recognize that there are factors which limit its contribution to knowledge.

To begin, there was an unforeseen circumstance that arose during the field component of the research, which limited the ability of the researcher to compile an institutional perspective of the topic from all of the stakeholders examined in the analysis. Specifically, in reference to the interviews that were conducted with institutional representatives, the researcher's efforts to contact the CYFN to arrange an interview with a representative were unsuccessful. During the efforts made to contact the CYFN, the same methods used to contact all other institutional representatives were repeated (invitation by telephone and/or email); however, no response was received. The ability of the researcher to persist in the arrangement of this meeting was limited by the time constraints of the field component of the

research. Unfortunately, the absence of this interview limits the ability of the thesis to describe and analyze the first nation perspective with respect to the topic.

This thesis is also limited in the factors that it uses to examine integration. In looking at the integration of environmental concerns with oil and gas development, it was decided that the primary analytical criteria would be the environmental and ecological effects of industry on the landscape, and the economic potentials associated with development. The rationale for limiting this thesis to these specific factors of integration is twofold. First, in order to provide a sufficient treatment of integration, while also adhering to practicalities (such as resource and time constraints), it was decided that certain factors must be included, to the exclusion of others. Essentially, this constitutes the necessary exercise of drawing boundaries for the research project. Second, it was discovered (through document review and interviews with representatives) that at present, it is the biophysical and the economic potential(s) of development that appear to be generating the majority of the argument, both for, and against, Yukon oil and gas development. Therefore, it was decided that these two factors would be the focus for examining integration. However, it is important to note that a more comprehensive approach to this question might choose to address a variety of other factors, including but not limited to: intergovernmental relationships, community and social development issues, and long-term sustainability implications.

Finally, in addressing the main research question, this thesis is constrained by the limitations inherent in the analytical framework that was used. Notably, the IAD framework is equipped to facilitate a description of institutional structure and function, and to detail the environmental and community context of such institutions. In doing so, the IAD framework provides an understanding of the action arena, at a chosen moment in time. However, the “snap-shot” provided by this description does little to address the progression of the topic from a temporal perspective, which limits the ability of this framework to consider time-related issues, such as ecological resistance, resilience, and sustainability.

In addition, by focusing on the formal rules that govern institutions (i.e. legislation, regulations, policies), many informal, but potentially influential and consequential interactions, may be overlooked by this framework. These informal interactions could include many associations, communications, and protocols that are outside of the scope of formal institutional proceedings, such as customary interactions, power-relationships, and “back-room” deals. If a complete understanding of how institutions interact and integrate with respect to a topic or problem is to be obtained, it is important that these informal interactions be acknowledged and understood.

6.4 Future Research Opportunities

In conducting this thesis, the author has been able to identify several opportunities where future research could expand upon the topic presented here, and

contribute to the understanding of Yukon oil and gas development. First of all, the topic that has been addressed in this thesis (the integration of environmental management and oil and gas development) could be continued in a longitudinal fashion as an ongoing research project, as development in the oil and gas sector progresses. This thesis approached this topic from a policy perspective, addressing the ways that strategic decision-making frameworks work to integrate environmental concerns with industrial development. Essentially, this was the place to begin such a research project, as any future interactions between the Yukon environment and the oil and gas sector will be guided by the policies studied here. Additionally, this topic is relevant to the state of development in the Yukon, as current oil and gas activity is mainly active as a planning exercise, in the formation of policy and strategic decision-making frameworks. However, as industry begins to invest in the Yukon, and development begins to occur, research opportunities that address specific ground-based occurrences will be more forthcoming. Within the Yukon, there are several regions that are environmentally sensitive or significant, and have oil and gas deposits. Specifically, the Peel Plateau, Eagle Plains, and the Turner Lake wetlands were all identified by the EMR Key Informant as regions where industry has expressed some degree of interest in development, and by the CPAWS Key Informant as regions where oil and gas development is inappropriate because of environmental sensitivities. Future research could follow developments as they occur in regions such as these, to determine how the institutional framework investigated in this thesis influences the integration of priorities on the ground. Research such as this, with its capacity to monitor ground-based activities, could serve as a feedback tool for policy-

makers on the effectiveness of current policies, and potentially contribute valuable information for future policies or amendments. In this respect, there could be several opportunities for pure science research to occur in ecological monitoring surrounding oil and gas developments. Additionally, the role of traditional ecological knowledge (TEK) could also be explored in this context.

In this thesis, the implications of oil and gas development were explored from an environmental context. Further investigations could also consider this development from a socio-cultural perspective, and investigate the ways in which oil and gas sector growth and development impact upon the social and cultural characteristics of communities. If significant growth occurs in the Yukon oil and gas sector, a number of accompanying changes can be anticipated. For instance, populations will grow as labour markets increase, and shift as project locations change. As profits from development are realized, Yukon residents will also have to contend with shifts in affluence and economic disparity. These, and many other effects of sudden industrial growth are deserving of careful consideration by decision-makers, and there is ample opportunity for research to contribute to a better understanding of these types of development concerns, and to better decision-making.

The preceding suggestions for future research expand on the broad topic explored in this thesis; that is, they suggest the study of integration (both environmental and socio-economic) within the context of REM. However, Yukon oil and gas development is by no means an over-studied topic. By any measure, there

has been relatively little academic research done thus far on contemporary Yukon oil and gas development, in any context. Therefore, the author would suggest that future opportunities for research are vast, and could be approached by any number of academic disciplines. Currently, the Yukon offers a unique perspective on oil and gas, as development has not yet occurred to a significant degree there. However, it does look to be forthcoming. Therefore, researchers still have the opportunity to actively influence the way in which development is to proceed, by contributing to the overall knowledge and understanding of the development process, and then communicating this research to relevant stakeholders and decision-makers.

6.5 Concluding Remarks

This thesis has broadly investigated the integration of human activity with the natural environment in the context of REM, by considering a case study in the Yukon dealing with the integration of environmental concerns and oil and gas development. In this respect, it has been possible to learn about the big picture of integration in resource management, by exploring and analyzing a practical REM situation. By understanding the ways in which environmental concerns are strategically addressed at the institutional level within the Yukon, our understanding of the challenges faced in balancing the workings of modern society with the natural environment that sustains us is increased. And, as this thesis has demonstrated, there is an inherent complexity in this relationship.

Upon first glance, it would seem (as the main research question would imply) that this topic is dualistic; in seeking to understand how environmental concerns can be integrated with development priorities. However, it has been shown that this is not really a two-sided issue. In the analysis, 10 distinct institutional actors were selected for their contribution and role in the case study. As the analysis demonstrated, these actors hold multiple perspectives on oil and gas development, environmental management, and the institutional framework. The opinions from institutional actors regarding how oil and gas development should proceed, and their perceptions of where current problems exist, were largely shaped by the agenda and objectives of the organizations themselves, with the largest discrepancy in opinion existing between political organizations and environmental advocacy groups. The implication of this is that as oil and gas development advances and more stakeholders become involved, so too will the number of agendas increase. As this happens, there will be an elevated possibility for conflict to emerge, as competing agendas are forced into closer proximity to one another. Adding to the complexity inherent in this multiplicity of institutional agendas are the intricate and ever-changing characteristics of the natural environment itself. As shifts occur in the environment, agendas that are predicated on the environment must also shift, and institutional frameworks that govern the development process will be forced to follow suit. As these practical issues emerge and evolve, it is likely that REM theory in IM, AM, and conflict resolution will become increasingly relevant and applicable.

APPENDIX – Interview Protocol

Case Study Interview Protocol

“An Institutional Analysis of Oil and Gas Sector Development and Environmental Management in the Yukon Territory”

a) Introduce myself and the project; define “strategic” in context of project; explain that interview is seeking perspective of participant’s agency or organization, not individual perspective

b) Address ethics statement/ Informed Consent Form; begin questions if participant signs form

Questions

1. What is the current status of oil and gas development and management in the Yukon, and how has this changed in recent years? What are the key agencies and organizations involved in the current process?
2. What is the Territorial context in which Yukon oil and gas planning and management is proceeding? (i.e. current issues and/or concerns for Yukon and Yukon residents)
3. What is the role of your organization or agency in the Yukon oil and gas development process?
4. Describe the goal(s) of your organization or agency regarding oil and gas development. What is the approach being used to realize these goals?
5. What is the level of priority being expressed by your organization or agency towards addressing issues of oil and gas development?
6. Describe the current frameworks and mechanisms for integrating oil and gas development priorities and environmental concerns, prior to conflict emerging. Describe how these mechanisms are effective or not effective.
7. How are the priorities of your agency or organization (concerning oil and gas) integrated within these frameworks and mechanisms? Is this integration effective at addressing your priorities?
8. What are the current strategic mechanisms for addressing conflict between oil and gas development and environmental concern? How do these mechanisms work for, or against, the goals of your agency or organization?
9. Have you seen, or do you anticipate, conflict over goals, planning, and/or management in the oil and gas development process?
10. Can you recommend any additional sources of information/ personnel to contact, that may be of help to this study?

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